

A
CASE
OF
DIABETES,

WITH AN
HISTORICAL SKETCH

OF THAT

DISEASE.

BY

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Yarmouth :

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ERRATA.

- Page xv—For Savauge, read *Sauvage*.
2—For nozology, read *nosology*.
5—For his, read *this*.
13—For Libye, read *Libyæ*.
14—For Lucan, read *Lucian*.
18—Change the first period into a colon:
18—After *drink*, add *any liquid*.
28—For vifca and vificam, read *vesica, vesicam*.
28—For mucous, read *mucus*.
30—For sympton; read *symptom*.
34—For is, read *are*.
56—For Listen, read *Lister*.
60—For Vallanovanus, read *Villanovanus*.
60—For hæmatitas, read *hæmatites*.
66—Add a comma after *rice*, and convert the period into a colon after &c:
68—After *milk*, convert the period into a colon:
71—For was, read *were*.
82—For was, read *were*.
82—For Wattman, read *Wittman*.
87—After *fame*, convert the period into a colon:
92—For *Macet*, read *Marcet*.
93—For had, read *have*.
95—For mucous, read *mucus*.
97—For look, read *looked*.
99—Convert the period after *hours* into a colon:

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PREFACE.

THE annexed case of diabetes is due to the ingenuity of Dr. Rollo and Mr. Cruickshanks.

But as amidst the multiplicity of the correspondents of Dr. Rollo, he seems, by his publication on diabetes, to have overlooked some parts of my letters to him concerning my former patient Capt. M. and certainly did not rightly understand in what manner Capt. M. had been for three months under the care of a surgeon and physician, "without* the circumstance of increased urine being known" to them, it is but justice to Mr. Penrice the surgeon, and myself, that that part of the retrospect of Capt. M's case, which has been
a omitted

* Vide Dr. Rollo's Preface.

omitted by Dr. Rollo, should precede the detail of my present diabetic case. Capt. M. by his convivial habits, had induced feelings which led him to take repeated doses of two ounces of common purging salts. Some time after that he applied for a heat in making urine, to Mr. Penrice, who first gave him nitre, and afterwards calomel, and the patient thought himself well for some weeks. Not long after Capt. M. called upon me, and finding by his account the common symptoms of intemperance, I ordered him a grain of calomel in a pill, to be swallowed every night for six nights, and limited his quantity of wine to one pint a day, and his diet to that which I thought would be easiest of digestion, such as animal food without any raw vegetables, pickles, pie-crust, or sweetmeats. I saw him once or twice within the first week, and being informed by him, that he thought himself much better, I only desired him to repeat one of his pills every second, or third night, for two or three weeks longer, and to adhere to his regimen. I occasionally afterwards used to meet Capt. M. as I walked my rounds in
Yarmouth

Yarmouth, when he always acknowledged to me, the very great benefit he had received from his medicine. In no other manner had I any farther conversation with Capt. M. until a day or two before his departure for London, when after a ride from a dinner in the country, he had been exposed to a very heavy shower of rain, and was attacked the next day with an inflammation of the tonsils. Being then sent for to him, for what he supposed a new disease, I ordered him a purgative dose of castor oil, which he had in the house, to be taken immediately, and wrote a prescription for a gargle with muriatic acid, and a sudorific dose of laudanum and antimony to be taken at bed-time. The next morning he appeared free from fever, his sore throat was gone, and he proceeded either that afternoon or the day after for London and Woolwich. These were the only two prescriptions I ever wrote for Capt. M. prior to his disease being detected by Dr. Rollo. The prescriptions were not put up by Mr. Penrice, but at a chymist's. Mr. Penrice had never met me at Capt. M's, nor known from Capt. M. that

I had seen him as a patient. And I never understood that Capt. M. during any part of those three months, had ever considered himself ill enough to be absent one single day from his duty as an officer.

Capt. M. was naturally fat, his make round, and his features small, and as his clothes were made to go very tight about him, and I had no knowledge of his person until he became my patient, he appeared to me a very stout man: but to Dr. Rollo, who had known him many years before he had any diabetes, he seemed so thrunk, as to excite those enquiries which led to the discovery of his disease. I received a letter from Dr. Rollo, by the return of Capt. M. to Yarmouth, to inform me, that he had discovered the urine of Capt. M. to be diabetic, and to request me to mark the progress of the symptoms, as he had some peculiar ideas on the treatment of diabetes. As I found Capt. M. had been ordered only tincture of bark and a milk diet, I was anxious to learn what were the ideas which led Dr. Rollo to direct a liquid diet in a disease which I had always considered as accompanied with
more

more or less of local affection of the kidneys. Dr. Rollo's letters were not written any more than my own for the press, but I shall take the liberty of annexing some parts of our correspondence, as they give the symptoms as they arose before I became acquainted with his ideas on the disease.

Though Capt. M. was exceedingly punctual in every thing which related to his duty as a soldier, yet I could not make him, for any length of time, exact in ascertaining the quantity of his drink, or of his urine. The spruce beer which he drank, and the fruit which he ate, were not with my approbation. He was evidently worse whenever he tried them, though he used to declare that he thought they lessened both the quantity and the sweetness of his urine. But before we indulge in any severity on these, or the similar self-deceptions which Dr. Rollo has recorded of Capt. M. it is necessary to remember, that the most accurate of the old writers on diabetes, have remarked how much the resolution weakens in this disease. Nor can we wonder, if under the perpetual cravings
which

which are excited by a diabetes, the most resolute should cease to pay any regard to medical restrictions. Dr. Rollo supposes all that has been said before his work on diabetes, may be learned from Drs. Cullen, Dobson, Home, and Richter. Though Dr. Cullen has referred only to twelve authors, Dr. Dobson to none, Dr. Home to seven, and Dr. Richter to four, on this disease, yet there can be no doubt but they have all read much on the subject. The speculations of Dr. Cullen and Dr. Beddoes, have led Dr. Rollo to experiments which will give great credibility to the random cures of diabetes, that are to be met with in books, and to the adoption of a treatment which will sometimes cure, and always, probably as long as the diet can be adhered to, suspend the disease. But as a systematic writer, Dr. Cullen is defective on the diabetes, in not mentioning the heat, and sometimes pain in making urine, which Aretæus and other old writers have noticed. As the proximate cause of diabetes has varied with the theories of medicine which have prevailed in the different ages, it may appear desirable

firable to a speculative reader, that no opinion of this disease be altogether overlooked. And as it is not always easy, by reading, to determine the gradations of the sweet, the insipid, and the cæliac, diabetes from each other, I have directed the attention of the reader to those varieties of the disease, which I have been able to collect from authors.

I cannot pretend, from the scanty resources of a country collection of books, to enumerate all the authors on diabetes, though in searching for the particular symptoms which I met with in Capt. M. I have glanced at the opinions and cases that are scattered through many works. But from the want of several of the original productions, I have been obliged to take the opinions of some, from the quotations of others: And as I have found inaccuracies in the works of Bonetus, and similar compilers, on comparing them with the original productions which I possess, a more perfect historical sketch of this disease, may doubtless be easily produced from a larger library. It is also but decent for me to confess, that though some of the authors
whom

whom I have noticed may derive additional celebrity from the discovery of Dr. Rollo, yet they cannot be said in the smallest degree to detract from the utility of his work as a practical publication: And that I should not have thought of offering the tribute of this case to him in the shape of a pamphlet, could I have communicated it without noticing some passages in his book, relating to the retrospect of Capt. M's disease. The digressions which are blended with the historical compilation on this disease, and the few objections which are made to some parts of Dr. Rollo's theory, I must entreat the reader to consider as only conjectures submitted to the mercy of his criticism.

Mr. T—, having directed his whole life by a system of piety and benevolence, is one of the most respectable of the people called methodists.

He

He has been thirty-two years a water drinker, and is in the fifty-fifth year of his age. His face is uncommonly florid; his eyes are blue; his eye-brows are shaded with a yellowish red hair; and his skin is naturally much inclined to perspire. He contracted an asthma thirty-four years ago, by remaining some time up to his loins in the sea; and he continued to baffle the hopes of his friends, and the art of medicine for two years, when being directed to drink only water, his appetite became so exceedingly keen, that, though he is only five feet two inches in height, he arrived at the standard weight of eighteen stone* nine pounds, and so far re-established his health, as to render his asthma a mild disease, alternating with piles.

I was desired to visit him at Lowestoft, with Mr. Arnold his surgeon, on the 9th of May, 1798, when the symptoms which were discovered were these. He had made that day several pints of straw-coloured urine, which had a violet smell, and a taste so sweet, that it could scarcely be distinguished from a
b
solution

* Fourteen pounds to the stone.

solution of honey and water. His nights were sleepless; his bowels were exceedingly costive; his pulse was quick; his skin was uncommonly dry and hot. He loathed all sorts of food. His gums and his tongue were of a dark shining red colour, bespangled with viscid saliva, but he was not sensible of any acid taste. He described a burning feverish-feeling throughout all his viscera, some feebleness, but no pain, about his loins, and great tremor and debility along the muscles of his thighs. He did not know till I had asked the question, that he had any phymosis. Naturally his prepuce was not tight about his penis, but upon attempting to denude the glans penis he found it was impossible, and that the blood was ready to start upon the trial. The phymosis was precisely like that, which I had accidentally discovered in my two former diabetic patients, and which I described in a letter to Dr. Rollo in the year 1796.* Mr. T. had never perceived either

* See the first letter in the Appendix to Dr. Rollo.

either the thirst, or any extraordinary quantity of urine, until the 2d of April, 1798, when after a journey of twenty miles in a cart, which shook him very much, he drank fourteen pints of fleeted milk in the twenty-four hours, and he believes he evacuated fully that quantity of urine; and from its quantity he was led to discover its sweetness.

For some weeks before his journey, he had shrunk much about the thighs, and felt himself unusually weak, and as he had been in the habit of weighing himself frequently, he was able to say, that within the last three months he had lost twenty-four pounds in weight.

He was desired to live on animal food and toast and water, with as little bread as possible; to have his food and his person daily weighed, and his urine measured; and instead of drinking much at a time of toast and water, to keep some of it constantly in his mouth, and to spit it into a basin, in order that the daily quantity of drink which should be swallowed might be also precisely ascertained. I had ordered him the kali sulphuratum in pills; but as he

had a dread of taking medicine, and it was evident that neither kali sulphuratum, nor the hepatized ammonia, had any power to counteract the effects of an apple in Capt. M's case, I did not enforce the necessity of any medicine but castor, or salad oil, to keep the bowels open, provided he would adhere to the diet.

These rules he strictly complied with, and from the journal which he kept, and the observations which he made on those deviations of diet, which he was sometimes tempted to commit, when he thought he had subdued the diathesis, the following remarks are taken.

1st. That the shrinking was detected before any thirst or increase of urine was known to the patient.

2d. That though the urine within the first twenty-four hours from the commencement of the animal diet changed to a urinous taste, and became every day more urinous, and did not amount to the quantity of liquid swallowed by a pint a day, yet the patient continued to shrink a pound a day for the first three days he was under the regimen.

3d.

3d. The first great alteration for the better in his feelings, arose on the third night after taking a pint and a half of animal jelly, which increased his weight the next morning two pounds.

4th. The eating of crabs or any other shell-fish always relieved his thirst and other diabetical symptoms, still more powerfully than any other animal food; but that whiting and all other fish not of the shell kind, reproduced the thirst, &c. as rapidly as any vegetables.

6th. That the diet of animal food took away the asthma.*

7th. That the patient continued to make repeated trials with vegetables, &c. at the distance of six weeks after he thought himself well; but the experiment always immediately reproduced the dryness of the skin and limpid urine. He therefore gave up farther experiments until the month of November, when I requested him to try fried eggs, parsneps, and
cabbages,

* Savaugé has taken notice that diabetes and asthma will sometimes alternate with each other.

cabbages, all of which agreed exceedingly well with him. In January 1799, he tried tea, and it did not disagree with him. In February, he tried a little porter, which did not disagree with his stomach: but as he thought it rather reproduced the asthma, he declined taking any more of that drink. When the asthmatic symptoms subsided, he determined to try two or three glasses of port wine after dinner. The second day of this experiment reproduced all the symptoms of diabetes. He then rigidly resumed his diet of animal food, and in the month of May, he had remained several weeks free from relapse. But though he could at that time eat with impunity, many things which he could not at the commencement of his disease, yet the diabetic diathesis did not appear to be completely subdued.

8th. Mr. T's weight in May 1798, was only seventeen stone eleven pounds and a half, before he entered upon the diet of animal food; and in May 1799, it was eighteen stone seven pounds, which is within two pounds of what
had

had been his standard weight for many years before his attack of diabetes.

By the unavoidable delays of a country press, this case, which was intended to have been printed in May, has been postponed till July, and I am therefore enabled to extend his report beyond his original journal. In the month of June, the patient fancied he was able to eat acids without producing a relapse, but he very soon found that he was mistaken. And though he has again subdued the diabetic symptoms, by a return to his regimen, yet his asthma is returned.

Probably the chemical properties of country bread differ from those of London, for the bread of Lowestoft was the first vegetable substance that this patient was able to eat without reproducing the diabetic symptoms.

While this case was printing, Mr. Adams, a surgeon of Northwalsam, has given me an account of a female patient with diabetes, who drinks fifteen pints of liquid and discharges sixteen pints of urine, in the space of every twenty-four hours. With these symptoms she has great itching about the meatus urinarius,
which

which is considerably enlarged and discharges mucus.

Mr. Borrett, a surgeon in this town, has also called me to see a female patient of his, who with the diabetic discharge of urine, has also the forenefs and itching about the meatus urinarius. So that it will appear, that out of nine cafes of diabetes mellitus, which have been noticed in this part of the country, eight of them were diseased about the urethra.



HISTORICAL SKETCH

OF

DIABETES.

THE diabetes, hydrops matellæ, profluvium urinæ, dipsacon, morbus sitibundus, or diarrhea ad urinas, is not a very common disease in any climate.

And though we have from the Greek or Arabian writers, what is commonly thought to be but a very imperfect history of this disease, yet it has probably been a very ancient one in the Eastern regions. If Hippocrates or Prosper Alpinus have taken no notice of the diabetes, Theophilus, Actuarius, Aretæus, Ætius, Paulus Ægineta, Trallianus, A
Avicenna,

Avicenna, and Galen have, and the following passage from Cælius Aurelianus Siccensis shews that there were other writers on this disease, whose writings have not come down to us. “Item Appollonius Memphites alium dixit fieri hydropem cum retentione, ut si quis biberit, sine dilatione tanquam per fistulam transire egeratur: Ejus autem quem cum retentione fieri dixit, secundum plurimos tres esse differentias affirmat. Sed melius Demetrius Apameus ab hydrope describit, eum qui sine dilatione potum liquorum per urinam egerit, diabetem appellans, sicut specialiter de ipso scribentes docuimus.”—Lib. 3, cap. 8.

It is not surprising that Dr. Cullen in his nozology, should doubt whether many of the cases, which ancient writers have described, be those of true diabetes. The case published by Fernelius, where the patient drank sixteen pounds of medicated water in an hour, and evacuated by urine every portion of it as fast as it was drunk: that given by Scribonius, where the patient made four times the quantity of
urine

urine more than of liquid which he drank ; and that related by Cardan, where the patient made seventeen hundred and forty pounds of urine in sixty days, and was cured in a month afterwards, are all very doubtful cases of true diabetes. And the case, which is published by Sir Kenelme Digby of the Nun, at Rome, who for some weeks discharged more than two hundred pounds of urine in every twenty-four hours, is quite incredible.

The cases given by Ballonius are all very suspicious.

In the one case, the urine was sometimes bloody and discharged involuntarily ; and after death, in the left kidney a stone was found, and the right kidney was wasted. In the second case, the lungs were found black, and two stones were in each kidney ; but before death the patient had thirst and made pale urine. That the bladders of diabetic patients should be found after death contracted, as mentioned by Ballonius, Dr. Cullen might also doubt. But it is astonishing that he should hesitate whether Aretæus had

seen the true diabetes. Except the saccharine taste of the urine, he has described the disease in both its acute and chronic stage, with great accuracy. If Dr. Cullen did not consult the Greek itself of Aretæus on diabetes, he might have been led into his doubts by the translators, who, intent on making the Latin pure, rather than the description clear, have all taken the liberty of changing the nominative case to the verb παροιδεουσι, and thus rendered a sentence doubtful to an anatomical reader. παροιδεουσι ὀσφυν ορχιδας και ισχια are thus translated in Boerhaave's edition, and in all the authors who have quoted the passage from Aretæus, "*intumescent lumbi testes et ilia.*"—Lib. 2, cap. 2, περι διαβετεω.

The suppression of urine only for a little time, is not very likely to make the testes swell, though in the diabetes it may cause the bladder to distend downwards, sideways, and upwards. Now if *they*, meaning *the sick*, be considered as the nominative case to παροιδεουσι, and the accusative cases ὀσφυν ορχιδας and ισχια be admitted as governed by the preposition,

position, which is compounded with the verb, then *tumescunt circa lumbos testes et ischia*, only mean the utmost distention of the bladder, which would certainly take place under a retention of urine in the diabetes.

The first Latin translation of Aretæus was published in 1552, by Junius Paulus Cras-fus, a physician of Padua.

Henischius adopted the version of Cras-fus, and in the above passage the commen-tators seem to have followed each other. It is not to be wondered at, that those commentators, who were ignorant of ana-tomy, should not see the necessity of dis-tinguishing between *a swelling near to parts*, and *parts themselves swelling*. But one could scarcely have supposed that such medical men as Petit, Wiggans, and Boerhaave, could have adopted the Latin of this sen-tence without making on it a single com-ment.

I am aware, that scholars may say an accusative case coming after a neuter verb, may be referred to the ellipsis *κατα*, and that in translating such a sentence, the ac-cusative

eufative case is commonly construed as a nominative one to the verb. But they must be also aware, that *Verba cum præpositionibus composita regunt vi præpositionum*. And that Aretæus meant παροιδεουσι, should have the same power over the nouns in this sentence, as if he had written it οιδεουσι παρὰ I conclude from the preceding chapter of his on the dropsy: for when he describes the anasarca of the prepuce and scrotum, (where he might naturally enough suppose the testes themselves to be swelled) he uses the uncompounded verb, and makes the prepuce and testes the nominative cases to the verb Οιδεουσι ^{ορχεις} τε και ^{ποσθαι} which the commentators have translated “*intumes-
cunt testes et preputium.*”

Whoever will take the trouble to read Aretæus, will find that author was too well acquainted with the anatomy of the kidneys, ureters, and bladder, to suppose that the suppression of urine only for a little time, would make the testicles swell. In this country, the retention of urine has so overdilended the bladder, as to deprive it of its action,
and

and to render a catheter necessary where even no diabetes existed.

Can we then doubt in the diabetes, where so much urine is secreted, whether a temporary retention of it would cause the patient to swell about the loins, testes, and hips? The sense of distension about the kidneys, bladder, and perinæum, under retentions of urine in the bladder, is noticed by Forestus, and these are the parts which Aretæus appears to have described by the above sentence, for *παρ ορχιδας* and perinæum seem synonymous terms.

The following is the description which Aretæus gives of the acute and chronic diabetes.

“ Mankind is not very subject to the wonderful disease called diabetes, which is a falling away of the flesh and members into urine. Like the dropsy of the skin, it has coldness and moisture for its origin; but the accustomed passage is the kidneys and bladder: Not only they evacuate the urine without intermission, but the canals are also relaxed, and the discharge is with-
“ out

“ out ceasing. There is a daily renewal of
 “ this disease, and it is born for a long time.
 “ But short will be the life of that man
 “ in whom this disease has been established.
 “ For swift is the wasting, and sudden death
 “ sometimes takes place, or life becomes
 “ loathsome and vexed with pain. The thirst
 “ is intolerable, the increased quantity of
 “ drink not corresponding with the still
 “ greater quantity of urine which is dis-
 “ charged. Nor can any one prevent the
 “ sick from drinking, or discharging urine.
 “ The most ardent thirst prevails, and if the
 “ patients be prevented only for a short
 “ time from drink, their mouths dry up,
 “ their bodies parch, and they themselves
 “ think their bowels burn up with heat.
 “ They loath all things, are irresolute about
 “ every thing, and can scarcely be said to
 “ be more lifeless after death. *But what
 means

* James, under the article of diabetes, has
 given a translation of what Aretæus has said
 upon this disease: And though in the fol-
 lowing sentence, he has preserved the no-

“ means could compel them to restrain their
 “ urine? Or what sense of shame stronger
 “ than their pain? If the patients have re-
 “ tained their urine only for a short time,
 “ they swell about the loins, testes, and hips:
 “ And when they evacuate, they pour out
 “ the urine with heat; the swelled parts sub-
 “ side, and the exundation flows to the blad-
 “ der.* When the disease is arrived at this
 “ state

minative case, which appears to me to be
 the right, to the verb παροιδεουσι, yet he has
 done equal injustice with the Latin transla-
 tors to the author, by the manner in which
 he has finished the passage, *αππουρεειν δε τις
 αν επιςχοι τροπος. η τις αιςχυνη πονου κρεσσωνι. αλλα
 ηην ες μικρον εγκρατεες γενωνται, παροιδεουσι οςφυν
 ορχιας και ισχια*. James thus translates, “ No
 “ reason can induce, nor shame prevail upon
 “ them to restrain their water, for both sub-
 “ mit to a sense of pain: And upon the
 “ least suppression, they are afflicted with a
 “ tumour of the loins, testes, and hips.”

* This passage also tends to prove that Are-
 tæus meant by the former part of the sen-

“state, all easily discover it. But when it
 “is about to commence, the mouth is de-
 “prived of moisture: the saliva is white
 “and frothy, and at times the patients are
 “thirsty. But they have not yet begun to
 “drink immoderately. They have a sense
 “of weight about the præcordia, and as the
 “disease advances, they complain either of
 “heat or cold proceeding from the belly to
 “the bladder. The thirst is constant, but not
 “yet vehement. As the disease increases,
 “not only a slight heat, but an inherent gnaw-
 “ing, arises in the viscera. The abdomen is
 “wrinkled, the veins stand out, and the whole
 “body becomes slender, the overflow of urine
 “and the thirst are remarkably increased,
 “and when the sensation of the disease has
 “reached the penis, the urine is immediately
 “evacuated. And, therefore, the appellation
 “of diabetes appears to me to have been de-
 “rived from *a straining through*, as you may
 “say, because the moisture remains not in
 “the

tence, only to describe the distention of the
 urinary ducts and bladder.

“ the body, but wherever it had used to be
 “ collected, it slides away. The patients, in-
 “ deed, last some time, though not very long;
 “ for they urine with pain, and the wasting
 “ becomes violent. Not only the extraor-
 “ dinary quantity of drink which is taken is
 “ evacuated, but a great quantity of the flesh
 “ is dissolved into urine. Some acute disease
 “ may be the cause of this debility, which,
 “ having made its attack upon this part, has
 “ deposited by crisis, the peculiar malignity
 “ of its lurking poison. It is not improba-
 “ ble, also, that this most pernicious poison
 “ has arisen, from those things which effect
 “ the kidneys and bladder, and produced this
 “ disease. For, if any one be bitten with
 “ a dipsas, such an effect follows the bite.
 “ The dipsas is a fierce serpent, who strik-
 “ ing any one, kindles up a thirst which is
 “ not to be born, and the patient drinks most
 “ copiously, and cannot cure his thirst though
 “ he distends his belly with moisture: so in-
 “ explicable is the desire for drink. But, if
 “ on account of being pained with the dis-
 “ tention of the belly, and oppressed with

“ the quantity of fluid, he abstain a little time
 “ from drink, he thirsts again, and drinks
 “ most copiously. And this is the change of
 “ evils, for thirst and drink by turns relieve
 “ him. There are some also who cannot dis-
 “ charge any urine, nor have any other eva-
 “ cuation of what they drink. Therefore,
 “ with insatiable desire of drink, inundation
 “ of fluid, and distention of belly, at last
 “ they suddenly burst.”

Dr. Home* thinks very differently of Are-
 tæus' account of the diabetes from Dr. Cul-
 len, but he doubts what Aretæus says of the
 serpent dipfas, because Lucan takes no no-
 tice of the suppression of urine. Dr. Home
 probably

* “ 4. That the bite of the serpent dipfis
 “ occasions diabetes and violent thirst. Are-
 “ tæus asserts this; yet it seems doubtful, as
 “ he adds, that some of those infected did
 “ not pass any urine, and as Lucan, who
 “ accurately mentions the other symptoms
 “ which attend its poison, says nothing of it.”
 —Home's Clinical Experiments, 1st edition,
 p. 313.

probably quoted from memory, and therefore forget that Lucan has neither taken notice of a suppression, nor of an increased secretion of urine. He chiefly dwells upon the tears forsaking the eyes, the sweat the skin, and the thirst being so great, that no rivers can quench it.

Signiferum juvenum Tyrrheni sanguinis Aulum
 Torta caput retro dipsas calcata momordit?
 Vix dolor, aut sensus dentis fuit, ipsaque lethi
 Frons caret invidia, nec quicquam plaga minatur.
 Ecce subit virus tacitum carpitque medallas,
 Ignis edax, calidaque incendit viscera tabe.
 Ebibit humorem circum vitalia fufum,
 Pestis et in sicco linguam torrere palato
 Cœpit: defessos iret qui sudor in artus
 Non fuit. Atque oculos lacrymarum vena refugit.
 Non decus imperii, non mœsti jura Catonis
 Ardentem tenere virum, quin spargere signa
 Audere totus que furens exquireret agris
 Quas poscebat aquas sitiens in corde venenum
 Ille vel in Tanian ~~missus~~ Rhodanumque Padumque
 Arderet, Nilumque bibens per rura vagantem.
 Accessit morti Libyæ fatigue minorem,
 Famam dipsas habet terris adjuta per ustis.
 Scrutatur venas penitus squalentis arenæ:
 Nunc redit ad Syrteis et fluctus accipit ore

Aquoreus

mel
 Aquoreus placet, sed non et sufficit humor,
 Nec sentit fatigue genus mortemque veneni:
 Sed putat esse sitim: ferroque aperire tumente
 Sustinuit venas, atque os implere cruore.

Lucan's Pharsal: lib. ix. line 740.

Nicander, in his Theriaca ~~Andromeda~~: confirms the opinion of Aretæus on the effects which are produced by the poison of this serpent.

Αὐτὰρ ὅγ' αὐτὲ ταυρὸς ἀπὲρ πόταμοιο νεν^Συκίως
 Χανδὸν ἀμετρήτου δέχεται ποτὸν εἰσοκε νηδύς
 Ομφαλὸν ἐκρήξειε χεεὶ δ' ὑπεραχθεα Φορτὸν.

Lucan has written a whole letter (which he has called the dipsades) to his friend about this serpent of Lybia; where, after describing the violent thirst which is excited by the bite of the dipfas, he elegantly compares himself to a person who is bitten with that serpent: for the more he drinks of, the more he thirsts for, the pure stream of his friends conversation.

Ardoynus, who seems to have read almost all ancient authors on the subject of poisons,
 gives

gives the following account of the serpent dipfas.

Dipfas seu fitula seu serpens fitire faciens, est serpens cujus longitudo est palmi unius: et super corpus ejus sunt vestigia nigra plurima, et caput ejus est parvum, et collum ipsius grossum, et incipit creatura ejus ex collo grosso usque ad caudam, subtilem: et forma, ejus est forma viperæ et color ejus usque ad caudum, ad nigridinem est declivis et incedit conquassando caudam suam et habitat in littoribus maris, et invenitur ut plurimum in regione Lokiati et Assen. Dicitur autem Græcè dipfas, quod Latinè idem quod fitire faciens; et dicitur fitula quia adeo fitire facit quod fitula indiget. Accidentia consequentia morsuram ejus sunt adustio ventris et inflammatio et appetitus vehementissimus bibendi præcipuè aquam usque ad mortem, quamvis nunquam satiatur absque exitu rei alicujus per urinam vel per sudorem: quare inflatur venter ejus totus et currit aqua in venas ipsius: et tandem cum fiti vehementissima moritur, ut hydropicus nisi ei debite subveniatur. Causa
omnium

omnium præfatorum accidentium est præfata veneni serpentis prædicti natura, quæ sui excessiva et consequentur adustia caliditate, ventrem adurit et inflammat, et sui venenosa proprietate insatiabilem appetitum bibendi precipuè aquam inducit et corpus adurendo seu inflammando et consequenter exiccando et corrugando, sicut corium ab ignis caliditate vias urinæ et corporis porositates constringit et consequenter oppilat quare retinetur urina et prohebetur sudor: propter quod aquositas transmittitur ad ventris concavitatem et consequenter venter ipse inflatur et tumescit et pars etiam aquositatis currit cum sanguine in venas ipsius: quare tandem cum siti vehementissima moritur nisi ei debite succuratur.—Vide Ardoyni opus de Venenis, p. 356.

And as diuretics are recommended by Avicenna, for the cure of the bite of this serpent, it may be inferred, that Aretæus meant, if the dropfical distention from the bite of the serpent dipsas was not relieved by a critical evacuation of urine, the patient would suddenly burst; or if this evacuation took place, it might establish a diabetes, and so at last end fatally.

Galen

Galen says, that he had never seen the diabetes but twice; that the patients are constantly thirsty, and drinking and discharging that which is drunk, unchanged in its quality, and that this disease of the kidneys is like to the lientery.*

Theophilus says, a profuse and rapid discharge of clear pale urine denotes a diabetes, which some learned physicians have called, a *diarrhea ad matulam*, and the most excellent of all physicians, Dioscorides.† But Theophilus has left us to guess who this most excellent physician was.

Actuarius says, much urine becomes a disease, which, from the celerity of the evacuation and its consequences, is called *stibundus*, *diabetes*, and *fluxus urinæ*: And that the urine is clear, as it is in all daily malignant evacuations of the belly, blood, or urine.‡

§ Alexander Trallianus says, when an im-

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moderate

* Galen, lib. vi. cap. 3.

† Theophilus περι ουρων.

‡ Actuarius, lib. i. de Jud: Urin:

§ Lib. viii. cap. 8.

moderate quantity of urine is discharged, it is called a diabetes. Sometimes, as soon as the patients drink, it is discharged as food is in lenteric patients, who cannot retain what they eat, one moment in their stomachs: that there are some who not only call this affection of the urine diabetes, but also *diarrhea ad urinas*, on account of the quick passage of the drink: And that on account of the immoderate thirst and evacuation of all moisture, others call this disease *dipsacus*, or *morbus siti-bundus*.

Fernelius, Langius, and Riverius agree, that the disease diabetes is so called from the rapid passing through of the urine; and that, therefore, the name of diabetes is given to a syphon, because that instrument is found to draw off the waters.*

Rabbi Moyes says, that he had never seen
nor

* “ Naturali enim spiritu omne alimentum
“ virentis, quasi quædam anima per medullam
“ trunci veluti per syphonem, quem Diabeten
“ vocant Mechanici, trahitur in summum.—
Columella de re rust: lib. iii. cap. 10.

nor heard of the diabetes from any of the oldest physicians of the West; but within ten years residence in Ægypt, he had seen more than twenty diabetic patients, which he thinks may be attributed to their drinking of the waters of the Nile.

The similitude between the urinary and perspirable secretions, and the tendency which the increase of the one secretion has to diminish the other, are well known. The sudden check which the perspirable vessels are exposed to, both from the great variation of the temperature of the air between the meridian and nocturnal hours, and the practice of cold bathing in the hottest parts of the day among the natives of the Eastern countries, with their practice of drinking cold sherbet, and living much on figs, plantains, dates, tamarinds, and other saccharine productions, may be all supposed from our present knowledge of diabetes, as much predisposing causes of this disease, as the waters of the Nile.*

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This

* Dapportus attributes the diseases of Alexandria to the air being impregnated with the

This saccharine beverage and diet will also account for the ancient writers not taking any notice of the honey-like taste of the urine of diabetic patients.

And as it was generally the practice of the Italian and French physicians to prescribe in most diseases, ptisans sweetened with honies or syrups, it is not to be wondered at, that Willis was the first physician who positively noticed the honey-like taste of the urine in the true diabetes, as arising from a change which the drink had undergone. He was probably led to the detection of the sweet urine in the diabetes, by the following remarkable passage in Trincavella, who, after describing the case of a Lady Abbess, who died with the diabetes, proceeds to another fatal case, in the following words.

Alter vero vir erat et ille quidem nobilissimus

exhalations of the river Nile, to the stagnant and impure waters of the cisterns, to drinking the turbid waters of the Nile, the eating sweet crude fruits, and the use of baths.—See Fred. Hoffman on Endemial Distempers, page 29.

mus frater Reverendissimi Cardinalis Pisani; hic cum febre laboraret et eâ satis malignâ atque fitis, quæ neque etiam multa erat, esset impatiens, bibere nolebat, nisi gelida ferè esset aqua, et reliqua, quibus in potu utebatur, quæ quidem jubebat in puteis demissa urceis perpetuo fervari: Unde ad eam imbecillitatem renes devenere, ut potus omnino immutatus redderetur, servans eundem colorem, consistentiam, saporemque et odorem. Utebatur autem primâ propter febrem Julep: Rosa-
ceo diluto ex aqua; et urina quæ paulo post a potu mingebatur, eadem omnino videbatur, quæ prius erat in cyatho antequam biberetur, eundemque referebat colorem aspicientibus, et odorem olfacientibus. Sed et quidam, qui illi ministrabant, gustare voluere, qui affirmarunt, neque in sapore ullam factam immutationem.*

The experiments which were made by thus tasting the urine of this patient, were very
likely

* Vide, lib. x, cap. 11, Trincavellæ de Ratione Curand: Partic: humani corporis affectus.

likely to suggest to a reader, the necessity of varying them, by imparting a bitter or some other flavour to the drink of a diabetic patient. But, that the urine of a diabetic patient was not exactly like the drinks which were swallowed, Aretæus evinces by his definition

Σαρκων και μελεων ἐς οὔρον ἡ ζύνηξις.

And Van Helmont, long before Willis, had said, that the blood of a diabetic patient is changed to a whey like urine. “Atque in
“diabete totus cruor mutatur in lotium lac-
“teum.”*

Long before Willis was born, Hercules Saxonia had distinguished the true from the spurious diabetes, by the smell, colour, and taste of the urine. “Mictio depravata ratione
“quantitatis et temporis potest sub diabetis
“nomine comprehendi, dummodo duplicem
“constituamus diabetem: Legitimam unam;
“Spuriam alteram.

“Est

* Scholarum Humoristicarum Passiva Deceptio.—Cap. sect. 38.

“ Est autem *Legitima Diabetes excretio rei*
 “ *potulente prorsus non mutatae in odore, colore,*
et sapore per vias lotii.

“ *Spuria Diabetes* quam Arabes multitudi-
 “ nem urinæ appellarunt, *est excretio urinæ in*
 “ *tanta copia quæ longè superat quantitatem rei*
 “ *assumptæ humidæ.*”—Page 223.

These definitions clearly prove that Hercules Saxonia knew the urine of the true diabetes was sweet; but that he, like his friend Trincavella, had attributed the smell, colour, and taste, to the sweetened ptisan which the patient had drunk.

The effects of the cold drink in Pisan's brother's case, correspond with the observations of some of the recorders of diabetes, who have traced this disease from the sudden application of cold to the body, whilst it was much heated. And the habits of the Italians, of drinking water cooled with ice, and of eating iced acids, will explain why this disease is more noticed by the Italian, than by any other of the ancient physicians. But draughts of cold water are probably not so constantly in this climate diuretic, as those of warm water,
 since

since there are more instances of diabetes having been induced by the drinking of tepid, than of cold water.

There are scarcely any persons, who in health, have drunk the warm waters of Bath or Buxton, who do not acknowledge to have felt from them diuretic effects. And as the custom of drinking punch in this country, was more common when Willis, Lister, and Blackmore wrote, the diabetes was then probably here a more frequent disease, than it is in the present times.

Theophilus, Actuarius, Trallianus, Zacutus Lusitanus, Rolandus, and others, have thought that the increased discharge of urine is prior to the thirst, yet in Lister's third case, (Sampson) the thirst was prior to any diabetes, and in my last patient, the shrinking preceded both the thirst and increase of urine.

Many of the old writers have agreed, that the diabetes often exists for some time before it is detected; and they describe cases where it had become the fatal crisis of fever. Here it may be suspected, the fever had sometimes been that sort of fever which always more or less

less accompanies the diabetes, and that in consequence of the diabetes increasng, the fever had increased so as to lead to the detection of the original disease.

Vidus Vidius and Soldanus attended a patient, who after being recovered by them from a fever, which was accompanied with livid exanthematous eruptions and other symptoms, fell into a diabetes and died within a fortnight.

Hollerius had seen the diabetes as an endemic disease, with a continued fever which proved fatal. Sydenham says, that the diabetes follows intermittents, especially where much bleeding had been used. And Dr. Cullen, after a long fever in an old man, found the urine sweet. Rondeletius had seen the diabetes three times in a father and a daughter, as an hereditary disease. Morton has given cases of Mr. Petit and his son, who had this disease: He also gives the case of a Master Wheeler, whose father had lost all his male children (except this child who recovered) with a consumption, arising from a discharge of saccharine-tasted urine during dentition.

D But,

But, as Mr. Wheeler had three female children alive, they either had escaped the disease, or had it in so mild a degree, as to have recovered without any medical assistance.

And Dr. Storer and Mr. Thomas in Dr. Rollo's second edition, have given additional proofs of this disease being sometimes hereditary. In Mayerne's* works, a case is described with the diabetic thirst, where the copious discharge of urine was sometimes mixed with a little blood. Hildanus gives a case of a child, who had an immoderate discharge of urine first, then a colic and purging, who was at last seized with a retention of urine. Lister gives nearly a similar case of a girl who recovered. This girl's case was induced by the drinking of the sulphureous waters of Knareborough. Lister gives also the case of an officer, where a violent catarrh preceded the diabetes. Bartholinus and Hoeferus speak of red wine having passed unchanged in its colour from the bladder.

Bauhinus

* Vide Opera Meyernii Studio Josephi Browne, page 208.

Bauhinus was witness that Capellus saw milk discharged from the bladder of a woman. Nicolaus Florentinus declares, that he knew a young man, who daily discharged much milky urine without any inconveniency.

Hildanus, Timæus, and many other writers, have taken notice of this sort of diabetes. Mercatus mentions a case of a diabetic discharge with ptyalism and difficulty of urine.

Kundenrick's father-in-law, from debility of the stomach had pallidness of countenance, acidity of stomach, ptyalism and a discharge of milky urine.—Vide Opera Timæi, page 114.

Cardan says, that he has seen eleven physicians of Milan, die with a discharge of urine: Such as heat, discharge, and retention as from stone in the kidneys, till with a profuse evacuation of urine they died. This he attributes to the constant riding, and frequent ascent and descent through that uneven city.

Cardan says, that he himself laboured for forty years under a discharge of urine, from sixty to an hundred ounces a day, without

being thirsty. And Gradus says, that such discharges are very common in Italy.

Sennertus, Forestus, Hercules Saxonia, Lotichius, Dodonæus, Zaccharus, Riverius, Musitanus, and some other writers, since Aretæus, have mentioned a suppression of urine as sometimes taking place in the later stages of diabetes. Some of the old writers* have taken notice, that the diabetes affects the penis, though they do not positively describe the phymosis which is apt to accompany this disease. Lister observes, “Renes quidem et
“visica et ipse coles afficiuntur, idque non
“sine aliquo doloris sensu;” and in another part he says, “Deinde visceribus semel inflammatis vitium per habitum corporis ad
“ipsos renes, visicam et penem transfertur.” Dolæus has still more nearly described the phymosis in these words, “Sic et visica cum
“intermediis et utrisque communibus ureteribus et aliquando urethra imo ipsæ nervosæ, et membranæ partes has vel illas
“ambientes et cingentes.”—Page 653.

That the mucous which defends the bladder

* Aretæus, Vidus Vidius Jun.

der and urethra should be sometimes washed away as fast as the glands of those parts can secrete it, and leave them in a state of irritation cannot be wondered at in this disease. Nor can we wonder, if at other times, from the irritation and inflammation, the secretion of the mucous glands should be so much increased as to bring on a gleet, as happened to the patient of Dr. Home. And when we consider the increased activity of the absorbents of the surface of the body in the diabetes there is no great difficulty in explaining why in this disease, the prepuce should sometimes become thickened, dry, and chopped, or that the meatus urinarius of females should be similarly affected as the male prepuce. Dr. Rollo supposes the phymosis to arise from the sugar in the urine. But De Haen gives the case of a boy of seven years of age, with calculus, who made bloody and highly alkaliescent urine, and had excoriation of the prepuce.* Though I am inclined to believe, that those

* De Haen *Experimenta in Calculosis*, p. 206, vol. i.—The urine was but little less al-

those authors, who notice a swelling of the testes, have taken this symptom rather on the supposed authority of Aretæus, than on their own observations, yet I can see no reason why inflammation of the prostate gland may not sometimes arise in the diabetes, so as to cause a pain and swelling of the testes.*

Dr. Home's patient had no cramps, yet this symptom is often the effect of the debility which is induced by a diabetes. But Willis seems

kaline than De Haen's first case, where he says, " Ut momento mictus ipso cum acidis
" effervescat; et Syrup: Violacei in viridif-
" fimum vertat." Murray also gives instances of phymosis, in his chapter *de Materia arthritica ad verenda aberrante*.

* I have seen two or three instances in acute dysentery, where the difficulty of making urine, which sometimes accompanies that disease, was also attended with inflammation of the testes. Instances of hernia humoralis from syphilis, have sometimes occurred, whereon the same side an acute pain of the knee accompanied the inflammation of the testicle.

seems to think, that spasmodic affections are very apt to precede the symptoms of this disease.

The insensibility of the stomach to emetic medicines, which is described in some of the diabetic cases, in Dr. Rollo's second edition, probably existed in those patients, before they had any of the symptoms of diabetes, and can scarcely, without additional facts, be considered as a symptom of the disease. Notwithstanding the general dryness of the skin in the diabetes, yet partial vesications and ulcerations are common effects of this disease.

It is difficult to explain satisfactorily, why the saccharine urine should attend diabetes, and not the other diseases, where acid eructations prevail.

Acidity of the stomach is common to gouty patients, yet their urine has generally the brick-dust sediment, and all the marks of being highly charged with lixivial salts. In phthisis pulmonalis the bulimous appetite is common, yet the urine has generally a brick-dust sediment. The paroxysm of fever in this disease, sometimes terminates by an increase

crease of expectoration, sometimes by a diarrhea, sometimes by a profuse perspiration.

When the fever in phthisis terminates by a diarrhea, the urine is often without any sediment; but when it goes off by perspiration, the sediment is very great, and the urine is so highly charged with animal salts, as not unfrequently to give great pain and difficulty in the evacuation. It may be answered, that in the phthisis pulmonalis, the saccharine matter is carried off by the sweat, diarrhea, or expectoration.

A *sweet-tasted expectoration, is not uncommon in diseases of the lungs. The experiments of Baglivus,† tend to prove the existence

* Hippocrates, Lister, and many other authors, particularly notice this symptom in diseases of the lungs.

† *Distillata saliva juvenis sani, ac jejuni relinquunt in fundo salino-acidum sedimentum in parva copia. Ex quibus aliisque brevitatis gratia prætermiſſis experimentis inducor, ut credam, salivam continuere in se sal nitrosalinum universali sali analogum ob eximias,*

tence of oxygene in the faliva of a healthy man. And Galen* has observed among the preternatural tastes, that the sweat, the faliva, the matter expectorated from the lungs, or vomitted from the stomach, will each sometimes become sweet to the taste. Guidott, when he was a student at Oxford, and only eighteen years of age, attributed the saccha-

E

rine

ac prorsus mirabiles suas vires, quas solvendo, fundendo, abstergendo, et licet insipida videatur, potenter penetrando in fermentatione ciborum, purificatione chyli, ejusdemque in sanguinem mutatione, coctioneque absolvit.—

Baglv: de Salivæ Natura usu et Morbis.

* “ Tertio ad hoc symptomatum genus, et
 “ qualitates corporis mutatas, refert Galenus
 “ etiam sapores præternaturales, cum scilicet
 “ sudorem in os aliquando defluentem gusta-
 “ mus, aut salivæ mutatam qualitatem percipi-
 “ mus; sicut et eorum quæ ex pulmone eji-
 “ ciuntur, aut e ventriculo evomuntur, quæ
 “ aliàs austera, aliàs acida, aliàs falsa, aliàs
 “ amara, aliàs *dulcia* apparent.”—Sennertus,
 tom. 1, lib. ii. cap. x. de symptomatibus quæ
 in qualitatibus corporis mutatis consistunt.

rine taste of diabetic urine, to an imperfect assimilation of the chyle.

The bulimous appetite which sometimes attends the diabetes, is thought by Dr. Rollo, rather to precede than succeed the immoderate evacuation of urine. As the greatest number of diabetic patients appear to have been of very perspirable constitutions, prior to their having any disease, it is probable, they had originally more appetite than the generality of people. Almost all persons newly arrived in an hot climate, if they remain free from acute diseases, may be said to labour for some months under a cutaneous diabetes. And the taste and smell of the perspiration, is generally, as Dr. Mosely observes, acid in tropical climates. There the appetite, while the perspiration goes on, is exceedingly keen, but during those hours that the hot winds prevail, the perspiration and the appetite are both suspended. As soon as the sea breeze returns, the perspiration becomes copious, and the appetite ravenous. And as a person becomes seasoned, that is less perspirable, the appetite is more moderate.

Future

Future facts must determine whether sailors be exempted from this disease.

But as neither thirst nor a copious flow of urine is likely to make a sailor consider himself sick while he is feeding on salt provisions, it is not improbable that the scorbutic symptoms (which almost always will appear towards the decline of a diabetes) are the first symptoms which drive a sailor to his surgeon: And a navy surgeon very naturally looking with a scorbutic eye at his patient, may have considered many a diabetic case as that of a true sea scurvy. Dr. Harbeck's patient was a master of a ship, but whether his voyages from Bristol were long or short, neither Gidott nor Harbeck have noticed.

Avicenna remarks, that the eating of quinces brings on diabetes. Paschalius gives a case of a patient who died of a diabetes which was brought on by lithontriptic medicines: And another who had this disease from the eating of quinces.

Dodonæus mentions a case of diabetes being brought on by drinking of the waters of the fountain of Leodiensis.

Tulpius, gives a case of diabetes which was induced by an infusion of nettles in wine; Amatus, by samphire, and Loffius, by the drink of the spawn of frogs. Schenklius mentions, that this disease has been brought on by the succus betulæ, and Grimmerius, by the use of tea. Dolæus relates the case of his uncle, who in one night's time, brought on a diabetic discharge by the drinking of cyder.

John Baptist: Theodosius says, he had seen the true diabetes only in two women, which disease they had induced by the abuse of Roman wine.

Dr. Home knew the chylous species of diabetes, "brought on by too frequent doses
"of jallap and mercur: dulc."

Dr. Falconer observes, that the Japanese* are subject to diabetes and atrophy, from the use of tea: And that he knew a man, who
induced

* Remarks on the Influence of Climates, by Dr. Falconer, (Printer, Dilly) p. 255.

induced a diabetes by the drinking of spruce beer.†

Galen thinks the diabetes like the lientery may be called a *necrosis* or death of the two powers *assimilation* and *attraction* (*absorption*.)* But in the other parts of his works he has written as if he thought the disease sometimes arose from the kidneys.† Theophilus and most of the Galenists supposed that the kidneys in consequence of a morbid heat in them attracted more copiously serum from the veins; that the veins imbibed from the liver; and the liver from the intestines and stomach, till the kidneys being oppressed by the weight, relieved themselves by a discharge of serum to the bladder: And that hence arose the immoderate

‡ Dr. Falconer's Letter to Dr. Rollo in his Work on Diabetes.

* Το δε ουν παθημα τοιουτου εστιν, οιον εν τη περι γαστεραλειεντρια νεκρωσις ως αν ειποι τις αμφωτερων των δυναμεων αλλοιωτικης τε και καθελητικης.—Galenus de Crisibus, lib. i. cap. iii.

† Galenus, lib. vi. cap. iii. de locis affectibus.

rate thirst, the accumulation of drink at the kidneys, and the expulsion of it to the bladder. Actuarius thinks, that the diabetes is either a disease of the kidneys or the liver.

As I am not in possession of Paracelsus's works, I shall give that author's opinion of the cause of diabetes, as I find it abridged in Dolæus. "Diabeticam passionem vero describit Paracelsus, *quod sit* sal ficcum resolutum & scissum et angulosum per ingressum acuti salis positum in medio centro hujus membri principalis, hoc sal est juxta ipsum chronicum, permanens & fixum."—P. 659, Dolæi.

Van Helmont thinks, that the diabetes is caused by an acid not being corrected by the bile: That the whole chyle becoming acid by the fermentation of the stomach, if unimpregnated with the bile, will be immediately changed into a salt, which if uncorrected, and conveyed with the fluids to the kidneys, will excite diabetes.

Marlianus supposes the cause of diabetes to be a conversion of the air in the arteries to water.

Eutachius

Eutachius Rudius thinks, that besides a diseased heat in the kidneys and liver, a morbid retention in the stomach is the cause of this disease.

Sennertus thinks an imperfect sanguification from a weakened action of the stomach is the cause of diabetes.

Moebius thinks that the diabetes sometimes arises from coldness, and sometimes from heat, of the kidneys.

Sylvius de Le'Boe thinks that the diabetes lurks in the blood rather than in the kidneys : that volatile salt and fixed alkali form the poison which by mixing with the latent acid of the blood, forces a more copious serum.

Willis thinks the diabetes originates rather from the blood than from an affection of the kidneys : That as the blood melts it is poured off too copiously into serosity : that the disease consists in laxity and a too dissolved state of the blood : And that irregularity of diet, the constant abuse of cyder, beer, and other acid wines, and perturbation of mind, tend to favour its production.

The opinions of Riverius on this disease, correspond with those of the Galenists.

Etmuller

Etmuller divides the diabetes into the vera, notha, and cæliaca. By the vera, he like Langius, means the insipid diabetes, by the notha, the limpid saccharine urine, and by cæliaca, the milky urine. Etmuller thinks these diseases arise from too much laxity and acids. And he refers to the story of the coriander seed being taken by the stomach, and evacuated with the urine, as seen by Pigræus, as if he* scarcely doubted it.

Tulpius

* There are many other of these sort of wonderful tales to be met with. As the five needles which were swallowed and discharged by urine, as related by Langius: The hair-pin the breadth of four fingers long, which after the death of the patient, was found in the bladder, as recorded by Alexander Benedictus: The small key which had been swallowed, and was long afterwards extracted from the bladder, with the calculus which had formed round it, as related by Jo. Matthæus: The evacuation of grape's stones, melon seeds, &c. with the urine, as related by Georg: Hieron: Velfchius.

Tulpius thinks, that whatever induces weakness in the kidneys, may be the cause of this disease. And the works of Pawe, Morgagni, Ruysch, Bonetus, Monro, Bailly, &c. agree in having found the kidneys of diabetic patients in a very lax state. But Dr. Rollo thinks the dissections which are given in his 2nd edition, tend to prove that the seat of diabetes is not in the kidneys. It must not, however, be forgotten, that in Mr. Thomas's case he says, "upon the under surface of the right kidney, a small collection of pus was found (somewhat like a scrophulous tubercle suppurated.)" P. 344, of Dr. Rollo's 2nd edition.

Lister seems to think, that the medicines which first injure the stomach and intestines, and next the kidneys and bladder, excite this disease: and he gives cases where sudorific doses of antimony, where honey, opiates, turpentine, acids, sulphurated and other medicinal waters have each induced the diabetes.

He thinks that wines medicated with the fumes of arsenic or sulphur, or medicated spirits, or waters either of the muriatic or sul-

F

phur

phur kind, or which are otherwise medicated with salts, metals, or earths, may induce the disease, he supposing, that in diseased habits, poisons may be transferred from the skin to the kidneys, by emetics or purges.

Mead says, the diabetes is much akin to the jaundice, that in dissections of diabetic patients, he has frequently found a steatomatous tumor of the liver, that the sweetness of diabetic urine is derived from the bile: And that before death in diabetes, the urine will change from a sweet to a bitter taste. Dr. Home objects to the former part of this opinion, the dissection of his patient who had no diseased liver.

But Dr. Storer recollects six instances of a mild species of diabetes with saccharine urine, and with the greatest number of them, a lumbago and hepatitis chronica, “concurrent or “alternated with the diabetes.” And though the dissections in Dr. Rollo’s 2nd edition, do not discover any liver disease, yet some of them confirm the observations of Mead, of the urine losing the sweet taste before death.

In

In Dr. Cawley's patient, the liver was wasted and externally of an ash colour, or nearly like pipe-clay, which might be moulded into any shape. But the colour of the liver when cut into, was natural, without any scirrous or steatomatous tumors.

Mead also thinks the drinking of warm water, and the sudden changes from heat to cold, especially after the body has been heated with spirituous potations, are very apt to induce this disease; and many of the modern cases of diabetes, strongly tend to support his opinion.

As Dr. Darwin's case, which was supposed to be induced by checking the perspiration of the hand with lime.

Dr. Hope's patient, who before his attack of diabetes, had slept in an open cart on a frosty morning.

Dr. Gerard's patient had been subject to perspire, and much addicted to bathing.

Dr. Home's patient, Murray, imputed his disease to cold and dampness.

Dr. Home's patient, who after drinking

Dunse spaw too plentifully in cold weather, was attacked with diabetes and gleet.

Dr. Marshall's patient took a draught of cold small beer, when in a profuse perspiration, and from that time became diabetic.

Dr. Richter's second case of diabetes "had been attacked with this disease, after being thoroughly wet, while he was much heated."

Dr. Freer's patient, Maclean, thought his diabetes arose from exposure to cold, while under a salivation from mercury.

Blackmore thinks, (page 219) "a diabetes consists in a depraved dilatation of the glands in the kidneys, that filter the serum, and such a shattered and dissolute state of blood, that make it apt to run off in a great profusion of unbrackish waters. And that the remote causes are irregular diet, improper liquors, and an inordinate use of cyder, ale, and acid juices of the grape, particularly rhenish and all other thin sharp white wines, which cause the coagulation of the blood."

Musitanus attributes the diabetes to imperfect digestion, whence too much acidity is diffused

diffused through the body, and irritates the kidneys.

Dr. Cullen has seen twenty cases of diabetes; he believes, by the testimony of authors, that some cases, though seldom, have been cured: But he doubts whether the cures were performed by the remedies to which they were ascribed. He inclines to the opinion, that in most cases of diabetes, the proximate cause is some fault in the assimilatory powers, or in those employed in converting alimentary matters into the proper animal fluids: And though he has his doubts of Ballonius's cases in the German Ephemeris, yet he does not altogether reject the idea of a calculus in the kidney, being sometimes the proximate cause of a diabetes.

Dobson thinks that our sweats are frequently chylous; that the acetous fermentation is subsequent to the excretion; that the sour taste in diabetes admits of the same explanation; that the gnawing hunger of diabetic patients arises from acidity in the stomach; and that the cure should be attempted by strengthening the digestive powers, in order to promote

mote a due sanguification, and a perfect assimilation through the whole œconomy.

Dr. Home says, (page 318) “ were I to
 “ give a theory to explain the nature and
 “ symptoms of this wonderful disease, I should
 “ say, that it arises from a defect of the animal
 “ or assimilatory process, by which the aliment
 “ is converted into the nature of our body.
 “ I have long looked on the excess or defect
 “ of this process, as a source of many disorders.
 “ All putrid diseases, the scurvy, &c.
 “ seem to be owing to its excess, acidity of
 “ the stomach, &c. to its defects. Among
 “ the latter, the diabetes may be arranged.
 “ For 1. The remote causes shew it. It arises
 “ from what debilitates the body, as
 “ moisture, preceding diseases, great evacua-
 “ tions, &c. by which it becomes incapable to
 “ assimilate the food. So Sydenham thought,
 “ *Affimulandis succis protinus impar est.* 2.
 “ The white chylous matter which is often se-
 “ creted with the urine, shows, that the vege-
 “ table part of the chyle is not assimilated.
 “ The dilatation of the urinary excretories
 “ cannot alone, account for this, as the serous
 part

“ part of the fluids would then escape too,
 “ which does not happen. 3. Sugar is found
 “ in diabetic urine, Sweet chyle is the first
 “ product of the stomachic and intestinal di-
 “ gestion; as chyle, in the thoracic duct, and
 “ milk which is a speedy secretion of it,
 “ contain much saccharine matter. This is
 “ changed in some hours, by the animal pro-
 “ cesses, into an ammoniacal salt, which is that
 “ found in all the excretions. But the sac-
 “ charine salt still remaining in the urine,
 “ which is the most perfectly animalized fluid,
 “ shews, that there is great defect in the ani-
 “ mal process. 4. Urine being of a septic
 “ nature, runs fast into putrescency. But the
 “ diabetic urine turns acidulous; and with,
 “ and often without yeast, undergoes the vi-
 “ nous fermentation. These peculiarities
 “ shew its vegetable nature; as vegetable
 “ juices, alone, are capable of the vinous
 “ and acetous fermentations.* It likewise
 “ shews

* If meat be roasted without any flour or
 salt, will it not acquire a saccharine taste about
 all the parts which are brown? And if this

“ shows, that it is the saline parts alone
 “ of bodies that ferment; for the fire must
 “ have coagulated the mucilaginous parti-
 “ cles, had there been any in diabetic urine.
 “ These vegetable salts show a defect in the
 “ animal process. These arguments appear
 “ more convincing than any of the former.
 “ But it may be objected to them. 1. That
 “ animal food should cure it, which it did not.
 “ 2. That septics, which brought on putrid
 “ eructations, made no change.* 3. That the
 proportion

brown part be washed off with water, will it
 not undergo fermentation?—See Plenck’s
 Hyglogy.

* Dr. Moseley observes, (page 91, 2nd edi-
 tion) that “ acids in all climates endanger
 “ the sweetness of the breath.” The patient,
 whom I mentioned in my letter to Dr. Bed-
 does, after living entirely on the acid of le-
 mons for some weeks, had his breath become
 exceedingly offensive. It may, therefore, be
 doubted, whether putrid eructations be a suf-
 ficient criterion, that a person has lived en-
 tirely on animal food, or whether, as Dr. Ge-

“ proportion of saccharine matter is much
 “ greater in their urine, than in milk. But
 “ milk has not, perhaps, the whole saccharine
 “ salts of the chyle.”

The late ingenious Mr. Charles Darwin supposed the retrograde motions of the lymphatics, from their valves being diseased, to be the cause of the diabetes. But the experiments of anatomists do not favour this opinion.

Richter thinks the diabetes is of a spasmodic nature, and that a stimulus irritating the kidneys, is the cause of this disease, which he thinks resembles the lientery.

Dr. Rollo thinks “ a morbid condition of
 “ the stomach, and a general diffusion of sac-
 “ charine matter, with probably, some change
 “ from that of health in the fluids of the
 “ system, are the immediate causes of diabe-
 “ tes:” That (page 231) “ the voraciouf-
 “ ness or keenness of appetite, with the very

G

quick

rard observes, an hospital patient will for any length of time, give Dr. Rollo's plan of diet a fair trial.

“ quick returns of it after eating, mark an in-
 “ creased action of the stomach. ” (page 60)
 And that “ By means of the stomach and ge-
 “ neral regimen, the system may be hyper-
 “ oxygenated, may be de-oxygenated, and
 “ may be confined to its necessary oxygenated
 “ state.” But as a voraciousness* or keenness
 of appetite is by no means a constant attend-
 ant of this disease, many may prefer the term
 of *a stomach not being in perfect force*,† to
 an *increased, or peculiar action of the stomach*.
 Where the food was thrown up undissolv-
 ed, there may be no objection to the term of
 a

* See Dr. Fothergill’s patient’s case by Dr.
 Dickson, in the Medical Observations and
 Enquiries, vol. iii.

† In the case which is published in Dr.
 Rollo’s 2nd edition, of a man who died, and
 had been originally under the directions of
 Mr. Thomas and Dr. Rollo; Mr. Thomas
 remarked, that no saccharine urine was ever
 induced in this patient, by the eating of parsnips;
 but that bread always reproduced sweet
 urine.

a peculiar or increased action *in the stomach*, though there is as much objection to an increased action *of the stomach*, as there would be to say the action of a cask was increased, when its contents were fermenting into vinegar. Indeed, the best proofs of the action of the stomach are, when it is able to prevent those chemical changes from going on, which always do take place in mixtures of saccharine matters and liquids, if exposed to heat, where there is no life.

Dr. Rutherford thinks, that the lacteals, absorbents, and the lymphatics of the lungs, would be found enlarged in the diabetes: And that the extraordinary quantity of water on the surface of the lungs, is produced to be reabsorbed, to supply the extraordinary quantity of urine. But in Dr. Cawley's case, the patient died of a marasmus, not from the increased quantity, but from the altered quality of the urine.

Dr. Bree thinks, the diabetes may be sometimes induced by a distended stomach from dyspepsia, or gluttony; by which distension, a

compression on the vessels bringing blood from the lower viscera, determines a larger portion of serum to the kidneys; in the same manner as the exhalent vessels of an artery, pour out a larger quantity of moisture, when ligatures are so made round a limb, that its veins cannot return the blood to the heart; or as an enlarged viscus, by pressing upon the great vessels, causes a dropfical effusion.—Bree on Asthma, page 226.

Though the etymology of the word diabetes may admit of every immoderate discharge of urine being called diabetes, yet, by the definitions of a number of writers, it seems to be justifiable to reject all those cases of immoderate discharges of urine, as cases of diabetes, which are not accompanied with thirst; and to state the diagnostics of this disease, to be great thirst, and shrinking, and dryness of the skin, with increase of saccharine or insipid tasted urine. A great quantity of urine in diabetes, is often not observed, when the thirst, shrinking, and even saccharine urine have been detected. And, as there is
reason

reason to believe, that the phymosis* is often the only symptom which has excited the attention of the patient, that symptom, with the sensation of heat in the urethra on making urine, ought to be noticed in the nosological definition of this disease. On the prognosis of

* Not long since, conversing with my friend, Dr. Lubbock of Norwich, he informed me, that a person had called upon him to be relieved from a phymosis, which had troubled him for a few weeks, and for which he had been previously under the direction of a medical gentleman for some time; that, upon finding the phymosis did not yield to the applications commonly useful in such cases, Dr. Lubbock began to suspect it was connected with the diabetic diathesis, and upon enquiry, found that the patient discharged eight pints of urine in twenty-four hours, sweet to the taste, and readily passing into the vinous fermentation; he was in apparent health, and had made no complaint of general disease. And it is, with Dr. Lubbock's permission, that this fact is published.

of diabetes, authors have observed that the insipid diabetes is very rarely a fatal disease. But in the saccharine diabetes, the event has generally been reckoned dangerous, as often ending fatally in fevers, or some other untractable disease, especially in the old, or after fevers, or in those who had been previously weakened by fatigues, or venery: though when this disease took place in young subjects and was soon discovered, they might recover. Willis, after giving his method of cure, confesses, that though he cured patients with this disease, they were very subject to relapses, and that the diatheses generally remained for life. The urine, as Dr. Pearson observes, may contain sugar, even in the insipid diabetes. And it is probable by the letter of Dr. Storer, and the various histories of cases that are to be met with in Dr. Rollo's second edition, that there are diabetes with saccharine tasted urine, which are not fatal diseases, whether they happen in the old or young; or have been sooner or later discovered: While other cases which had been early discovered, and dietetically treated,

ed, had the symptoms for a time suspended, but could not be cured.* Probably in such cases, a paralytic torpor seizes on some of the glands, which are necessary to chylification; hence loss of appetite, marasmus, scurvy, anasarca, and partial deaths about the throat, chest, &c. lead on to the death of the whole body, and prove that the term *necrosis* is sometimes not too strong, which Galen has given to this disease.

With the variety of opinions about the cause of diabetes, the method of cure, of course varied. Aretæus, who supposes the disease to arise from coldness and moisture, thinks that it requires a similar treatment to the

* I have been told, that Dr. Gillam, who accompanied Lord Macartney to China, laboured under a diabetes, and that the disease was suspended for some months, by Dr. Rollo's plan. But whether Dr. Gillam died in consequence of the regimen ceasing to have any effects over the diabetes, or from his no longer having the resolution to adhere to the diet, the gentleman who informed me of his death, had not ascertained.

the dropfy. With him, the first object is to attempt the cure by affuaging the thirst. This, he fays, is not to be done by drinking, as he thinks it is from the ftomach that the incentives to thirst arife. He recommends hiera* to be fwallowed, epethems and cataplafms of fpikenard, maffich, and oils, to be externally applied, and the patient to ufe water boiled with autumnal fruits; and his aliment to be of the forbile kind, mixed with farinaceous fubftances, milk, garlick, and aftringent wine, for reftoring the tone of the ftomach: He forbids falt as exciting thirst: but he approves of fweet urine which reftores ftrength by generating blood, and he recommends theriaca, methredate, and other opiate and ftrengthening medicines. It is doubted by fome, whether all the writings of Aretæus have been preferved on this difeafe, becaufe Ætius fays, Aretæus recommended

* As the ancients had a variety of medicines by the name of hiera, the compofition of this, which Aretæus means, can be only conjecture. —See Lifen and Scribonius Largus on this Subject.

recommended sudorifics, which remedies are not mentioned on the diabetes in his present works.

Ætius, Alexander Trallianus, Paulus Ægineta, and many others, who supposed that this disease arose from excess of heat, recommended bleeding, tamarinds, cassia, the juice of crane's bill, an infusion of pears, barley water with sugar of roses and sorrel, and the topical application of oils, to refrigerate the kidneys.

Ætius also recommended emetics, in which practice he was followed by Horatius Augenus, Bendelius Epiphanius Ferdinandus, Platerus, Riverius, Zacutus Lusitanus, and many others.

In order to understand the practice of Sylvius de Le Boë, it is necessary to recollect his system. It is not, perhaps, very easy to do justice in a few pages, to an author, whose opinions are diversified through above a thousand propositions. The following are some of the leading points of his doctrine, which strongly resemble Dr. Rollo's idea of oxygenating or dis-oxygenating the habit by acids and alkalies.

H

All

All things are subject to change. The greatest change that man is subject to, is that from life to death. A man dies, when in himself, the innate fire of the heart is extinguished or killed; when it is unsupplied with the convenient food, or deprived of proper air by inspiration. The proper food for this fire is good blood. Blood is supplied by the aliments taken by the mouth, consisting of solids and liquids. The change which the food undergoes, is called chylication by some, but by Sylvius, fermentation. There are two sorts of dissolutions arising from mixture, the one may be called distruction, the other dissolution. That with a sudden and evident dissolution by fire, is called burning. The other happening through water, without evident loss of parts, is called fermentation, and when the fermentation is accompanied with fætor, it is called putrefaction. There is a double union of mixture; the strongest is salt, the weakest is oil, water weakens the force of the first, fire changes or destroys that of the second.

The fresh expressed juice of fruit, with a proper degree of heat and air; corn, honey,
or

or raisins, boiled with water, and exposed in convenient vessels to the air; masses preserved from flour, with a proper degree of air, water, and heat, are all said to be fermented. This process, according to Sylvius, is similar to chylication, which is totally different from the ebullition, which is excited by the mixture of quick lime with water, or from effervescence, which he calls a battle of lixivial salts with acids. The lixivial salt of the bile, according to him, is poured out from the liver to effervesce, with the acid of fermented food, and the acid of the blood, to produce the vital effervescence or phænomena of life. Most diseases arise from a deficiency or an excess of effervescence, which may arise from a deficiency or an excess of alkali from the liver. And an abolition, either of the alkali or of the acid, is an abolition of vital effervescence, which is death. But, as this hypothesis is accompanied with no experiments, his method of cure is different from that of Dr. Rollo's. Sylvius recommends blending oily things with the acrid, offending volatile alkali, as emulsions of bar-

ley, almonds, white poppies seed, melons, cucumbers, &c. the sweet milk of cows, sheep, women, or asses; he recommends not only acids, but volatile spirit mixed with them; the spirit of salt, &c. in some convenient drink, as broth, &c.

Benedictus recommends large doses of coral, camphor, amber, and gum sanguinis draconis: Arnold: Vallanovanus, camphor troches with roses: Langius, preparations of coral and iron: Wedelius, an extract essence and syrup of plantago: Grulingius, a tincture and salt of corals: Hartman, a tincture of pearls: Glauber, lapis hæmatitis artificialis, terra sigillata, aqua calcis: Willis, aqua calcis, tincture of antimony, an opiate at bed-time: Etmuller, a decoction of orange peel, antihecticum Poterii, terra sigillata, lime water, an opiate at bed-time, saccharum Saturni, lapis hæmatites: Platerus, bleeding, the mucilage of fleawort, infusion of gum tragacanth sweetened with sugar: And Arnold: Weichardus, the gizzard of fowls and the head of hares, of each half an ounce, and five drachms of bees, all of which are to be burnt

burnt to a powder with mastich, and half a drachm to a drachm to be taken for a dose. Sydenham recommends a variety of boles and astringent medicines with theriaca Androm: an anti-dyspeptic diet, as animal food and Spanish wine after each meal, without fruits or vegetables. Dr. Brisbane recommends the tincture of cantharidis. Dr. Darwin, rosin and opium.

Eraſtus afferts, that he cured a boy ſolely by a decoction of the inner bark of the oak.

A boy, who had induced the diabetes with the Greifbacenſis acids, Hildanus cured with almond milk and capon broth, mixed with yolks of eggs, and a decoction of roſes, burnt hartſhorn, and coral. But when the boy departed from his diet, he ſuffered a relapſe, which proved fatal.

Rulandus cured a woman with a bath of of ſweet water, in which, heated iron had been extinguished, and a decoction of milk and water with iron.

Achilles Gaſſerius has ſeen a diabetes cured with a decoction of river crabs and maſtich, ſweetened for common drink.

Father

Father Angelus, in his translation of the Persian Pharmacopeia, gives the following prescriptions, which are used by the Persians in the diabètes.

R. Baccarum Myrti

Seminis Oxalidis Mundate, ana drachmas
duas

Gum: Arabici

Amyli, ana drachmam unam

Pulverata & mucillagine Psyllii excepta,
reducantur in pastillos: dosis drachmæ
duæ

R. Spodii sue Tabaschir

Rob: Liquorit: ana drachmas decem

Seminis Lactucæ, drachmas viginti

Seminis Portulacæ, drachmas quindecim

Rofarum

Coriandorum Siccorum, ana drachmas
quinque

Acaciæ

Santali

Bol: Armenæ

Camphor:

* *Florum Granatorum*, ana drachmas duas

Camphor: drachmam dimidiam

Trita & cribrata reducantur in pastillos
dosis, drachmæ tres, ex aquâ granato-
rum acidorum.

Baglivus recommends pills with catechu and other astringent medicines.—Schroder the *polygonum minus*.

Donatus cured two patients of diabetes, with warm baths, and drinks of torrified barley with sugar of roses and forrel.

The remark which Aristotlet† has made, that all fat is hot, and that the kidneys are
 more

* Those who are only acquainted with the astringent powers of the pomegranate bark, may be surpris'd to learn, that the blossoms of this fruit is one of the most drastic purges, and a single blossom is often given by the Asiatics, with success, in obstinate dysenteries. But even this small dose is said to act so violently, as to occasion sometimes fainting under its operation.

† Cap. ix. *περι νεφρων.*

more accustomed to heat, because they are more than any other viscera furrounded with fat, influenced many of the older practitioners to give a greasy diet and oleaginous medicines, in almost all the diseases of the kidneys.

In the year 1557, Forestus cured Nicolaus, a priest, who appeared to Forestus, shrunk as one who had laboured long under a diabetic disposition. Nicolaus had pain in the loins, weakness of the kidneys, a copious discharge of pale greasy urine, with œdematous legs. Forestus forbid this patient all acids, acrids, salts, and old wine, and put him on that sort of diet, which he recommends in hectic and tabes, such as fat Guinea fowls, capons, lamb, fat flesh, fat kid, veal, poultry, the yolks of fresh eggs, the testes of fowls, fat broth made with fat poultry, fat veal or ducks, and the use of marrow, &c.* Every morning, the patient took sheep's milk with a little sugar, and every evening, almond emulsion prepared with the four greater cold seeds and those of white poppies.

* Omnia exsiccantia, quæ hic damnantur, salsa, acuta, acetosa, et austera interdixi &

poppies. His medicines consisted of conserve of violets and poppies, with a decoction of lettuce: an oleaginous liniment for the loins, and fomentations to the feet. As it is not noticed, that Nicolaus had thirst; and as greasy urine is not a very common symptom of true diabetes, (though it is noticed by Et-muller)

vinum vetus:

*	*	*	*
*	*	*	*
*	*	*	*
*	*	*	*

Quod ad cibum attinet, omnia humectantia admisi, quæque hecticis, & tabe confectis alias scripsimus convenire & quæcunque corpora replent, ut gallina pinguis, capi quoque & agnina caro pinguis, hædina, vitulina, gallinacea, et jocinera ova recentia (non hypenemia, id est, subventanea et citra coitum edita Plino dicuntur Zephyria ova, lib. 10, cap. lx.) testes-que gallinacei, si haberi possunt, juscula pingua, adipe gallinaceo, aut vitulino pingui reddita aut anserino adipe recente.—Opera Foresti, page 442.

muller) this is a case which cannot positively be called a diabetes.

But Joan: Colle, in his works, has described the symptoms of a true diabetes in the case of a Venetian nobleman, whom he cured with ptisans of roses, with rice myrrh, garlick, and pomegranate tincture, and cookery from turtle, pea fowls, calves' feet, pork, &c. The curd of milk without the whey, cheefe without salt, almond emulsion, and every morning fresh eggs with a scruple of prepared pearls, corals, &c. and red astringent wine iced, with a variety of other astringent and forbile medicines, a sudorific at bed-time, and frictions of oils about the loins. Colle, in a similar manner, cured another patient with a diabetic discharge of urine and pain of the stomach.

In Fuller's History of Somersetshire, it is said, that Dr. Samuel Ward, of Sidney College, Cambridge, was cured of a diabètes by the Bristol waters.

Harris cured one patient with white and yellow saunders, rhubarb, and cardamon seed steeped in red wine.

The

The nobleman, who was a patient of Drs. Michelwait, Wicherly, and Willis, was cured in a month's time, by a distillation of cypress tops, eggs, and milk, to which gum arabic, gum tragacanth, and saccharum penidium, were added. His diet consisted chiefly of milk, and he took every night an opiate draught. He afterwards relapsed, and then was cured by a similar plan, and the addition of lime water. James, in his medical dictionary, says, that Willis gives "the history of a
 " woman of about fifty years of age, and of a
 " full habit of body, who so long laboured
 " under a diabetes and salivation succeeding
 " each other alternately, that her strength was
 " highly exhausted: For this patient, he pre-
 " scribed an infusion of rhubarb in Canary
 " wine; a few days after, he ordered her Ful-
 " ler's decoctum catechu compositum, every
 " night: And for common drink, Florence
 " wine diluted with Bristol waters; by which
 " means, both disorders were effectually re-
 " moved in two or three weeks, and the pa-
 " tient enjoyed perfect health for several years
 " after." But in the edition of Willis's works

by Blafius, I cannot find this case. And as Willis died many years before Fuller printed his Pharmacopeia, this cure is probably extracted from some other author, and by mistake attributed to Willis.

Lifter cured one of his patients by potations of almonds and milk. And his other, by giving him wine boiled with ginger; draughts of milk, and chicken broth.

Morton cured Master Wheeler, who had the honey-tasted urine, with milk, the Iflington spaw, and diacodium. But, until dentition was completed, this patient did not remain free from relapses of diabetes.

Morton cured also Mr. Petit of a diabetes mellitus, with a milk diet, an astringent, julep, and electuaries of bole and gum tragacanth, and the patient had remained five years free from relapse, when Morton published. He had also cured the son of Mr. Petit of this disease, with a milk diet, astringents, and the Tunbridge water, who had remained ten years without suffering any relapse.

Dr.

Dr. Harbeck,* in a letter to Guidott, describes a case of diabetes in a Mr. Alexander,
the

* Domine Egregie,

Expetis a me observationem
Diabetis Potu Aquarum fontis Sancti Vincentii Curatæ, in Naucloero quodum, nomine Alexandro, hujus Civitatis, & breviter hic habes. Vir prædictus imprimis urinæ profluvium per aliquot tempus passus, cui sensim febris lenta supervenit, et brevi in *Diabetem* incedit confirmatam & deploratam; mingebat etenim, Mirum dictu! Urinæ limpidæ dulcentis circa tres congios spatio horarum 24. Tanta Virium prostratione, spirandi difficultate et siti inextinguibili laborabat, ut lecto affixus moribundus videbatur: Sub vesperam ad consulendum cum Doctore Chancey qui prius ægrum curasset, accersabar; inter alia remedia præscripsimus potationem aquarum fontis St. Vincentii ad libitum quod ægro fuit *gratissimum*; dictum & factum; quid tandem? Illa nocte circa libras 24. ingesset tantundemque per Urinas reddidit: Propediem invenimus omnia symptomata *Mitiora*: Sitis

the master of a ship, who in 1690, had remained cured by the Bristol waters two years, without suffering any relapse; though he had made about three gallons of limpid sweet urine in the twenty-four hours during his illness, and could not raise himself from the bed, without appearing to be dying.

Dr. Fothergill* cured his patient, who made
sweet

& febris *imminuta*, respiratio liberior & pulsus multo *melior* cum blanda diaphoresi. Indies deinde concedimas Aquæ *tantum* quantum fiti respondere valeret, (cum idoneâ victus ratione) de die & de nocte, a pastu & antepastum indiscriminatim, quotiescumque libueret. Sic intra dies quatuordecim, vel eo circiter, diluta est Diabetes & vires quomodo restitutæ: Sed æger persistit in Aquæ potatione per longum tempus imo vice potus ordinarii et jam per biennium Sanus evasit.—Vide Epistolam Thomæ Harbech: D. D. ad Thomam Gidott in ejus observationibus de thermis Britanicis, page 385.

* Vide Vol. iii. Medical Observations and Enquiries, page 139.

sweet urine, by a blister over the sacrum, calomel and rhubarb, lime water, alum whey, and sudorifics.

Dr. Brocklesby† cured his patient, who had palpitation of the heart and interrupted pulse, first by bleeding, rhubarb, steel and asafœtida, and afterwards alum whey.

Burserius cured one of his diabetic patients, (who was above seventy years of age, and had been attacked with the diabetes after a hemiplegia) by bleeding him in the foot, and the long use of a milk diet and bark. Burserius's other patient had either a suppuration of the kidneys or bladder, whose difficulty of breathing, and pain of the back, was relieved by bleeding.

Dr. M'Cormick* cured two cases of diabetes with Dover's powder.

Richter recommends camphor for this disease, and gives an account of four cases of diabetes.

The

† Vide Vol. iii. Medical Observations and Enquiries, page 274.

* Duncan's Commentaries for 1783.

The first was of a month's standing after a fever, and was cured with a single emetic.

His second case, was first cured by antimonials and a warm bath. The disease returned in a fortnight, and was again cured with the antimony, warm bath, and bitters. But, in another fortnight, the disease returned, and increased with the symptoms of scurvy. The patient was then ordered wort; " by the use " of which, the disease, by degrees, disappeared for ever.

The third case, Richter cured with emetic tartar and valerian.

In his fourth case, as often as his patient had thrown up the contents of the stomach from the effects of ipecacuanha, the diabetes disappeared for twenty-four hours. But Richter does not say, whether this case was cured. He says, " Stoeller (V. Boebatch) cured a patient with peruvian bark and opium: Dobson (Med: Obs: and Inquir:) by warm baths: M'Cormick (Med: Com: vol. ix.) by Dover's powder. The following conclusion of Dr. Dobson, on his diabetic patient, will prove what

what pretensions that case had to be classed with the catalogue of cures.

“ He continued in the hospital seven
 “ months; during some part of which time
 “ he was so far recovered, as to pass only
 “ fourteen pints of urine every twenty-four
 “ hours; his skin became moist and soft, and
 “ he gained flesh and strength. The follow-
 “ ing were the remedies, by which he was
 “ most benefited; they were frequently, how-
 “ ever, changed and varied, as it was found
 “ that none of them produced their good ef-
 “ fects for any considerable length of time.
 “ The bark in substance, with small doses of
 “ rhubarb. The decoction of the bark, with
 “ the acid elixir of vitriol. The cold infusion
 “ of the bark, of which he drank from a quart
 “ to three pints daily. Dover’s powder. Alum
 “ whey. Lime water. Antimonials combined
 “ with tinctura thebaica. The warm bath was
 “ occasionally used, whenever the skin was re-
 “ markably hot and dry, and the patient com-
 “ plained of restlessness and anxiety. The
 “ tincture of cantharides was likewise tried,
 “ but he could never take more than twenty-

“ five drops to a dose, without exciting great
 “ uneasiness in the bowels. The body was kept
 “ constantly open, either with rhubarb, or
 “ infusion of senna joined with rhubarb. He
 “ had for common drink, barley water, rice
 “ water, lime water and milk, lime water
 “ alone, sage, balm, or mint tea, small beer,
 “ simple water, and water acidulated with the
 “ vitriolic acid. About the end of May 1793,
 “ as he seemed to gain little further advan-
 “ tage from being in the hospital, I was desi-
 “ rous that he should have an opportunity of
 “ drinking the waters of Matlock. I provi-
 “ ded, therefore, for the expences of his jour-
 “ ney, and recommended him, at the same
 “ time, to the charitable attention of a gen-
 “ tleman upon the spot. The patient, how-
 “ ever, never went to Matlock; and, whether
 “ he was ashamed of having mis-applied what
 “ was given for his relief, or he relapsed into
 “ the more dangerous stages of the disease, I
 “ could never learn, as he came from a re-
 “ mote part of the country.”

A case, which was only so far recovered,
 that the patient evacuated fourteen pints of
 urine

urine in the twenty-four hours, ought not to be referred to as a cure.

Frank cured his patients by a generous plan of diet, and belladonna and tonic medicines.

Dr. Ferriar's patient had the thirst and sweetish urine of a true diabetes, and was cured by vitriolic acid and the bark.

Dr. Peter Shee's* patient had been a glazier; and with the symptoms of diabetes, he had a paralytic affection of the right side. Dr. Shee suspended the diabetes for nine months, with gum kino, camphor, and flores zinci, fimarouba, valerian, and catechu, and a generous plan of diet. The patient reproduced his disease by intemperance and died.

Mr. Scott, in his letter to Sir Joseph Banks, says, that he cured the only two instances of diabetes which he met with in India, by mercury, after many other remedies had been tried; that one of these patients relapsed, and he cured him with nitric acid. But it is

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doubtful

* Duncan's Annals of Medicine, vol. i.

doubtful whether these were the diabetes mellitus.

Dr. Storer removed the diabetic symptoms in a gentleman, for eight or nine weeks, by keeping up a forenefs of the gums with mercury. But after the mercury was laid aside, the diabetic symptoms recurred.

Dr. Rollo, by the daily chemical examination of Capt. M's urine, discovered that a diet of animal food prevented the appearance of any saccharine matter in the urine, and that the eating of any vegetable food, reproduced sugar in the urine in a very few hours. By a strict adherence to a diet of animal food, and by the kali sulphuratum, and hepatized ammonia, Capt. M. and many other diabetic patients have been cured.

REMARKS.

ON the perusal of Dr. Rollo's work, the great improvement of his practice, appeared to me to have arisen from the daily experiments which were made on the urine of his patient. By which experiments, Dr. Rollo has clearly proved, that almost all vegetable substances contain more saccharine matter, than the organs of digestion of a diabetic patient can assimilate: And, thus he has enabled practitioners to explain, why the eating of a piece of apple might defeat the plan of cure, which had succeeded with the patients of Forestus, Colle, Willis, Sydenham, and other writers. But, I am inclined to deny, that either the symptoms which Capt. M. had, or the blood which was first drawn from him, or the quantity of sugar which was daily detected

detected in his urine, were any proofs of a super-oxygenated state of his system. The copper-coloured blotches on Capt. M's skin, which preceded any other symptoms of disease, and the ecchymosis which he had about the toes upon the pressure of them, only from walking cross a room, soon after the detection of his disease, were certainly no signs of a super-oxygenated system.

The first-drawn blood from this patient, whatever pretensions it might have to inflammatory blood, yet it wanted that red colour which Dr. Beddoes has defined to be the characteristic of super-oxygenated blood. Perhaps, it was the want of humidity, and not the excess of oxygene in Capt. M's blood, which prevented it from becoming putrid. For, if oxygenated substances kept longer from putrefaction than dis-oxygenated substances, then raw meat would keep longer from putrefaction than boiled or roasted meat, which I apprehend is not the fact. Nor, is it a fact, that fish will keep longer from putrefaction than other flesh, though in the diabetes, al-
most

most all fishes which are not of the shell kind, affect the urine like vegetables.

The quantity of sugar detected in the urine of Capt. M. was calculated at twenty-nine ounces in the twenty-four hours, which, one would think, was more than the whole quantity of food swallowed would yield; therefore, the greatest part of the sugar must have been derived from the air; and the kidneys must have robbed the whole system of oxygen, and left the patient in that state of dis-oxygenation, which should have cured the diabetes.

The best marked case of Richter's, is that, where the patient relapsed three different times. But, though the symptoms of sea scurvy appeared with the last relapse of diabetes, yet it was taken away by sweet wort, which, according to Dr. Rollo's theory, should have cured the scurvy and increased the diabetes.

In Dr. Marshall's case, the blood had lost all the red colour, and the urine had ceased to be sweet, yet the intolerable thirst continued to the last.

Dr. Rollo supposes the mercury to oxygenate the blood, and scurvy to be a disease where

where the blood is in a state of dis-oxygenation. Mercury cures the copper-coloured blotches in syphilis, why then does not mercury cure a true sea scurvy? Supposing the animal system to be as much governed by chemical laws, as Dr. Rollo imagines, is an acid eructation from the stomach, or an acid taste in the mouth, a proof of the surcharge of oxygene in the habit, when the fact is admitted, that the more oxygene is added to the muriatic acid, the less acid it becomes? There are many practitioners* besides myself, who have had patients with acid eructations, which were not to be subdued by alkalies, or the most dis-oxygenated animal food.

Hippocrates† says, they who have an acid eructation, are not subject to pleurify. This aphorism I have always thought exceedingly valuable, as it discriminates those pains which cannot bear general bleeding, from those which absolutely require it. But Dr. Rollo, notwithstanding the constant acid eructations

which

* See Richter's, &c. *Praxis Medica*.

† Lib. vj. aphor: xxxiij.

which Capt. M. complained of, has the following remark, after the first time that Capt. M. had been bled.

“ We think it proper here to observe, that
 “ the blood-letting seemed to relieve the pa-
 “ tient, as he felt the evening of the same day,
 “ according to his own expressions, lighter,
 “ cooler, and more cheerful, and had less pain
 “ about the kidneys, and this was on the eigh-
 “ teenth, the day before this particular treat-
 “ ment was commenced.

By the *murmuring of the patient*, at the pro-
 posal of the operation of a second bleeding,
 it would seem, as if the pleasant feelings after
 the first bleeding, were not of many hours
 duration. For Dr. Rollo, in his book, says,
 “ The patient was averse to the operation,
 “ and could not help declaring, that his phy-
 “ sician at Yarmouth, had told him when I
 “ had advised blood-letting, that unless he
 “ met with a criminal having the disease, no
 “ request or opinion could induce him to
 “ perform that operation in such a case. I
 “ answered, that he would soon return, should
 “ his duty lead him, and inform his physician
 L. “ that

“ that he had been twice bled, and was cured.
 “ He then submitted without any further mur-
 “ muring, to the operation, which was per-
 “ formed by Dr. Wattman.”

The bark and alum, which was first ordered for Capt. M. soon increased the heart-burn so much, that I was obliged to substitute bark, opium and calomel, and under that plan, his diabetes assumed such a chronic form, as enabled him to perform the duty of Brigade-Major to Gen. Loftus, for several weeks. And Capt. M. did not reproduce the symptoms of debility, until he had danced at an assembly, and accompanied on horseback Gen. Loftus to and from Norwich, and afterwards rode to Beccles and back again, which journies were both performed in the course of a few days, and amounted to more than 70 miles. As soon as the disease took on a more active appearance, I recollected Dr. Rollo's original request, and hastened Capt. M. to Woolwich. My reasons why I had not ordered Capt. M. to be bled, were stated to Dr. Rollo, and acknowledged by him, as may be seen in the letters which form the appendix. A Captain
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of the Oxford militia, was quartered at that time in Yarmouth, whose father had been cured of a diabetes, by the Bristol water. I had also informed Dr. Rollo of the case of Dr. W——, near Bury, in Suffolk, who had been three times cured of this disease, by drinking the Bristol water on the spot. And, as I had found by my reading, that in the time of Leigh, Short, and Blackmore, Bristol water was considered as a specific in the diabetes, I had advised Capt. M. if his disease was not in the course of a few weeks removed, to go down to Bristol, and to depend entirely on that water for his cure.

Though the additional number of patients, which the connections of many militia regiments and a fleet drew about Yarmouth at a very sickly season of the year, left me no leisure to enter upon experiments on the blood of Capt. M. yet, I do not hesitate to say, I would not sacrifice the immediate safety of any patient, so far to curiosity, as to order him to be bled under the rapid increase of debility, which was described in my first letter to Dr. Rollo, to oblige him, or any physician in the kingdom.

By a set of very ingenious experiments, Mr. Cruickshanks has proved, that the acid of milk, or saccholarctic acid, is different from the oxalic acid of diabetic urine. But, had he extended his experiments to that morbidly sweet milk, which takes place in many women before they can be prevailed on to wean their children, probably he would have found its chemical properties differ but little, if at all, from the saccharine urine of a diabetic patient. Under this sort of atrophy, a sinking, dragging sensation, is described between the breasts. The milk is almost transparent, and unnaturally sweet.

The patient becomes exceedingly thirsty, and daily loses her appetite, spirits, and strength.

A dryness of her fauces and trachea, gives her the repeated sensations of foreignness of throat, and difficulty of respiration, until a cough and fatal phthisis succeed.

Thus far I had proceeded before Dr. Ontyd's ingenious treatise had reached me.

In

In that work, he has bestowed on Dr. Rollo's treatise on diabetes, many pages of criticism, which will prove highly worthy of the consideration of medical readers. Dr. Ontyd has discussed three of the causes, which have been by different writers, supposed the proximate cause of diabetes; viz. Whether it be a general disease of the system, or an imperfect assimilation from a local disease of the stomach, or whether it arises from a local disease of the kidneys? Dr. Ontyd, after examining them all, comes to the following conclusion. "Diabetes, therefore, is by no means a disease of the system in general, or of the stomach, but it is a local disorder of the kidneys: and the saccharine matter which is found in the urine of those, who labour under diabetes, is an effect of a specific reaction of these organs, produced by the morbid stimulus," page 606; and at page 614, he says, "The proximate cause of diabetes thus, in my humble opinion, consists in a certain degree of debility of the kidneys, combined with morbid increased irritability of these organs."

He

He thinks, that the women who give suck, and the patients who labour under diabetes mellitus, part with larger quantities of sugar in the twenty-four hours, than the quantity of the food which they had swallowed in that time would yield; and, on this account, and the glandular structure of the kidneys, the diabetic discharge ought to be called a secretion, and not a separation.

Dr. Ontyd, from the cases of Drs. Frank, Osterdyk, Dickson, and Rollo, asserts, that the bulimous appetite does not always attend the diabetes. Osterdyk's patient, who had no appetite, died on the tenth day of the disorder. Dr. Ontyd thinks, that while the appetite keeps up in this disease, it may remain in a chronic state; but, that where there is no appetite, the disease is apt to become rapidly fatal.

He thinks the principles of animal food are hydrogene, carbone, and oxygene: that the principles of vegetables are carbone, hydrogene, oxygene, and in some plants, azote: that hydrogene, carbone, and a considerable portion of oxygene, are both in blood and in
fuet,

fuet, and therefore, he cannot see how blood, fuet, or milk, which Dr. Rollo used with his diabetic patients, could be said to dif-oxygenate the system.

Dr. Ontyd is aware of the utility of a diet of animal food, because he thinks a specific stimulus is brought on by a vegetable diet, the consequence of which, is sweet urine. And, he thinks animal food by a different stimulus, puts a stop to the secretion of sweet urine: But that the disease is not always cured, when the sweet urine is stopped.

Dr. Ontyd thinks also, that after this disease has continued for some time, it may be more difficult of cure from the change which the kidneys may have undergone by its duration.

He thinks, it is not proved by facts, that diabetic blood is generally buff-coloured: nor that a diet of animal food has produced a propensity to dissolution of the blood: nor that the stomach has the power of producing sugar.

He thinks, by Dr. Rollo's nosological arrangement, inflammatory blood, and hyper-oxygenated blood, are considered as the same.

And,

And, that as Capt. M's blood had the appearance of inflammatory blood, and he was cured by animal food, &c. &c. then, according to such an arrangement, animal food, opium, &c. &c. should be preferred in phlegmonous inflammations, to vegetables, acids, &c. whereas acids and vegetables are found preferable to animal food and opium, in all truly inflammatory diseases.

Dr. Ontyd refers to Whyte's works, to the 9th volume of Duncan's Commentaries, to the 6th volume of Sandifort's Bibliotheca, and Dr. Rollo's works, to prove, that a repelled gout, a retropulsed itch, a suppressed perspiration, &c. have each produced a diabetes.

He thinks, as diabetes may arise from very different causes, there is no specific in this disease. "Diabetes," he says, "may arise
 " from various other causes, but its two chief
 " sources, are a morbid state of the primæ
 " viæ, and preternatural affection of the lym-
 " phatic system: for, though it has been a mis-
 " taken notion of Dr. Rollo, that the seat
 " of diabetes is in the stomach, yet, the re-
 " mote cause of the disease is frequently to
 " be

“ be looked for in the primæ viæ. Dr. Richter cured diabetes, originating from a bilious matter in the stomach, by giving an emetic. And vomits are truly useful in diabetes in many respects, for in all cases, where the cause of diabetes is in the stomach, by taking away the cause, they remove the disorder itself.”—Page 619.

This passage is exceedingly at variance with itself, as well as with the former quotations on the seat and proximate cause of the disease: First, it asserts, that the diabetes may arise from various causes, which, undoubtedly, is granting that the proximate cause may also vary: Secondly, it makes the diabetes most frequently a disease of the lymphatic system, which is surely acknowledging the disease to be a general one: Thirdly, it says, Dr. Rollo is mistaken about the seat of the disease, for the remote cause only is to be looked for in the primæ viæ: Lastly, it refers to Dr. Richter's case, to prove that the seat of the disease was in the stomach, for by taking away the bilious matter of the stomach, the cause was taken away, and with the cause the disorder.

Is not this the very definition of a proximate cause, notwithstanding the assertion, *that it is only the remote cause which is to be looked for in the primæ viæ?*

Indeed, the confusion which there is in the above quotation, is so unlike the good sense which runs through the rest of the pages on the diabetes, that I am inclined to think, the translator in that part, has done great injustice to the meaning of Dr. Ontyd.

Dr. Ontyd observes, a spurious inflammation of the throat or lungs, often carries off a diabetic patient.

For the cure of a diabetes, he says, if the disease be produced by suppressed evacuation, that evacuation is to be excited: if by repelled cutaneous eruptions, these are to be brought back: if by suppressed perspiration, antimonials and opiates are to be given with the warm bath: if from fordes in the intestines, he recommends cleaning the bowels with calomel and rhubarb, and emetics where the debility is not great; but where it is, they ought to be wholly omitted. But, as astringents often convert the diabetes into an ascites,

ascites, as they lately did in a patient of Dr. Babington's, of Guy's hospital, Dr. Ontyd advises medicines which diminish irritability, such as kali sulphuratum, hyosciamus, hepatized ammonia, and cantharides, as best calculated to check the increased action of the absorbent vessels: And, as debility of the kidneys and their organs exists in this disease, he recommends, where the debility is not great, cicuta, belladonna, mercury, extractum hyosciamus, and above all, cantharides, hepatized ammonia, kali sulphuratum, animal food, and tepid baths; and afterwards, tonics to prevent relapses.

Dr. Ontyd approves of setons and other local drains, where the disease arose from suppressed eruptions, dried-up ulcers, &c. but not otherwise, especially if much debility prevail. On the subject of bleeding, he thinks in cases of local inflammation only, it ought to be recommended; but in general, he thinks this operation, as only tending to weaken, ought to be omitted.

I would beg leave to refer those, who wish to gratify their curiosity farther on this dis-

ease, to the original works which I have noticed, and to the following authors, whom I had no opportunity of consulting; Sylvaticus, Genathius, Brunerius, Jungken, Joubertus, Salmuth, Myers, Metz, in the 4th volume of Haller's Disputations, the 1st volume of La Medecine Eclairce, Ofterdyk, Frank, Macet's Thesis: And to the consideration of the reader, I submit the annexed query.

As diabetic patients seem often to have been carried off by some acute disease, after the diabetes had been seemingly cured, are the deaths of such patients occasioned (as Dr. Cleghorn supposes) merely by the inflammatory diathesis which their diet of animal food had induced? Or are they killed by a specific poison falling upon some other part of the body? Or do they die from their organs of digestion continuing to be unable to assimilate a sufficient quantity of sugar to nourish the body?

APPENDIX.

The Copy of Dr. Rollo's first Letter to Dr. Girdlestone, dated Woolwich, 16th June, 1796.

SIR,

CAPT. M. having consulted me, but at the same time, wishing to be back with his family, I had not advised any plan of treatment, more especially as he has got a disease whose nature and cure are at present not well understood. The disease is diabetes. The urine is sweetish, and when subjected to experiments, gives the usual results. I am much interested about my friend, and hope, therefore, should you not succeed in removing the disease, or should he not get much better in a few weeks, that you would advise him to return

turn with his family to Woolwich, where he can avail himself of any additional opinion in London.

I shall esteem it a favour to write me how he goes on, and I will thank you to inform me of the appearance of the disease when you saw him, as, from his account, I have reason to think, there were some symptoms leading you to suppose liver affection.

The ordnance chymist is to subject the urine to some experiments, to ascertain more satisfactorily its nature, and, if possible, to find out whether we are possessed of any substance that decomposes it, and can be taken in such a state with the stomach. I have some peculiar ideas on this subject, which, should you not succeed in the treatment, I may trouble you with, as they point out a treatment very different from what has been hitherto followed.

With much respect,

I am, Sir, yours, &c.

JOHN ROLLO.

*Dr. Girdlestone's Answer to Dr. Rollo, in June
1796.*

SIR,

BY the favour of your letter concerning Capt. M. I am made acquainted with symptoms which he never related to me. When Capt. M. first applied to me, he complained of a considerable loss of flesh, appetite, spirits, and complexion, attended with costiveness, thirst, tumid abdomen, and heat and discharge of mucous about the penis. To this account he added, that the civility of this town and neighbourhood, had exposed him to several months of intemperance. But as he took no notice to me, either of pain of the loins, or of any increase of urine, I had no reason to assign the common symptoms of intemperance, to so uncommon a disease, as that of the diabetes. I, therefore, only limited his quantity of wine to that of a pint a day, and gave him a grain of calomel every night for six nights.

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This plan reduced the size of the abdomen, increased the spirits, removed the costiveness, and cleared the complexion. And, as he thought himself getting well, after I had made him two or three visits, I only recommended him to persist in the same plan of diet, and to take a grain of calomel once or twice a week, as he might find occasion. I saw no more of him until a few days before his departure for London, when he had been exposed to a very heavy rain in the evening, after a dinner in the country, which brought on a slight inflammation of the fauces, chilliness, costiveness, &c. A dose of castor oil in the morning, with a gargle of muriatic acid, and a sudorific dose of vin: antimon: and tinct: thebaic: at bed-time, carried off this slight attack. Since I have been in this town, I have seen only two cases of diabetes. The one was of a young female of about nineteen years of age, who was cured by a few weeks perseverance in tinct: cantharid: and vin: ferri. She made treble the quantity of urine more than the quantity of liquid drunk. The urine was limpid and saccharine, the legs œdematous, and
the

the countenance bloodless, like that of a chlorotic patient.* The other was more strikingly marked: It was in a poor man who had come to me some miles from the country.

He complained to me of a slight drain from the penis, with thirst, pain of the loins, and incapability of retaining his urine many minutes, which was both limpid and saccharine. His body was extremely wasted, but his eyes look vivid, and his complexion florid. As he mentioned a drain from the penis, and as I had often found the benefit of not relying upon the account which private soldiers gave of themselves, when diseased in the urinary passages, I desired to have an inspection of the penis: and, was surprised to find, that with all the symptoms of a diabetes, there were an elongation of the prepuce, and discoloration

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coloration

* This girl has remained seven years without suffering any diabetic relapse. While she took the steel her complexion grew florid, but she now, without acknowledging any feelings of disease, has as bloodless a look as she had when she first became my patient.

loration of it, and the glans penis very different from the phymosis which accompanies a recent venereal inflammation. The redness was dull and opaque, approaching to that of raw beef. I tried sudorifics, zinc, iron, angustura, and a variety of astringent medicines, to no purpose, for many weeks. He at last declined coming to me, and I was unable to learn afterwards what became of him. Your letter, and the recollection of this case, made me anxious to advert to the heat which Capt. M. had complained of about the penis. Upon examination of the penis, I found that he had the same sort of redness of the glans penis and phymosis, as that, which I have just described in the case of my former patient.

There is only this difference, that the phymosis is so complete in Capt. M. that he can but just expose the point of the glans: whereas the other patient could, with some difficulty, denude the glans. But this difference seems to have arisen, merely from the original difference in the formation of the two prepuces. Capt. M. could, however, prior to the diabetes, denude his glans penis. And, although
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this redness and phymosis have not been mentioned by authors, I think it is very probable, that these appearances may be found to accompany this disease. Besides the above symptoms and diabetes, Capt. M. has had two other symptoms take place upon his journey to this town. The one was a vesication of the leg, which has broken into a flat livid ulcer, of the size of a shilling. The other is a livid-looking and pulpy-feeling tumor under the lower jaw, of the size of the largest hen's egg, which is extremely painful, and looks as if it would ulcerate in a few days. I observe, also, that the skin the whole length of each tibia is of a brownish yellow colour, as in sea scurvy, &c. and that his legs are varicose. Indeed, he appears to me to be so weakened and shrunk since his expedition to London, that I should wish to avail myself of any theory which you may have formed towards relieving this disease. I am giving him an electuary of equal parts of bark and alum, in the quantity of a nutmeg, every four hours. And confining him to a pint of wine a day, and as dry a diet as possible, forbidding at

the same time, his drink to be warm, or the quantity of drink to exceed two or three spoofuls at a time. And, in order to allay the fenfation of thirst, I permit him to amuse himself by keeping cold water in his mouth, as often as he likes.

By this plan, the quantity of his urine has been reduced within these last twenty-four hours, to the quantity of liquids swallowed, although it before exceeded the drink by three quarts a day. And since this reduction of the quantity of urine, the ulcer of the leg has put on a better appearance. You must excuse the blunders of this epistle, which is written at a very busy season of the year,

With Sir,

Your very respectful humble servant,

THOMAS GIRDLESTONE.

*Dr Rollo's second Letter, dated 3d July, 1796,
to Dr. Girdlestone.*

SIR,

I am extremely obliged to you for your letter regarding Capt. M's disease, and should have answered it immediately, had I not been unavoidably prevented. I wish I could give a new theory leading to a more successful practice; as a rational theory must be formed from observation, our facts in this disease are still too few. Any theory must, therefore, be speculative; speculative, as the opinion I have formed, may now be, it may by your assistance become more rational, but even speculative as it is, it comprehends chiefly the opinion of Cullen, with some variety; however, I shall reserve it until I again hear from you. I wish you could direct

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rect three or four ounces of blood to be taken, and observe the appearance and the taste of the serum, and the spontaneous changes it undergoes by a few days exposure to the air. In the case I saw at Edinburgh, the serum was sweetish, and the blood shewed no appearances of putrifaction a long time. Dobson of Liverpool, observed the same thing, but Home and Darwin observed differently. It is a material point to ascertain fully, though I have no doubt of it from what I saw, the patient had had, however, the disease eight months. Be so good to continue marking his case. I shall by and by give you the chymical results of the urine, &c.

I am, Sir, yours, &c.

J. ROLLO.

The first part of this Letter relates to a poor woman, to whom, at the request of Dr. Girdlestone, Dr. Rollo showed great humanity in attending her child, who after the natural small-pox, had ulcerations and exfoliations of part of the bones of the upper extremities.

The busy season of the year which this has proved to me, has deprived me of the opportunity of marking all the variation of Capt. M's symptoms, with that accuracy which I could wish. However, I have marked the symptoms daily, until his disease took on a more chronic appearance, and which detail I can supply you with at a future period, if you wish to record his case.

In my first letter to you, I mentioned that besides the diabetes and phymosis, Capt. M. had a discoloration along the shins, a vesication on the inside of the leg, terminating in a
cutaneous

cutaneous ulcer, with a pulpy-feeling tumor under the lower jaw.

The day after I wrote that letter to you, Capt. M. had the additional symptoms of a gout on the great toe, with increased dryness of the tongue, cramps of the muscles of the leg, and a deep seated sensation, of what he termed live blood, about the abdomen, corresponding with the direction of the emulgent and other large vessels of the trunk. The ulceration about the leg increased to about two or three inches circumference. The tumor under the lower jaw broke and discharged a large quantity of cream-like matter, and skinned over as rapidly as a primary chancre; whereas, the ulcer on the leg dried into a scab like a secondary venereal ulcer. And he has two or three marks of these cutaneous ulcerations, where the scab and the discoloration still remain. These appearances seem to me, to be also theoretic difficulties. As the alum began to keep up a perpetual heart-burn, I ordered Capt. M. the bark by itself, in large quantities, and had suggested to him a desire to excite perspiration, in order to give the
kidneys

kidnies time to recover their tone. This led Capt. M. to attempt a remedy which he had often heard would excite perspiration.

The remedy was a draught of cold water at bed-time: It produced perspiration, a good night's rest, and a considerable alteration in his motions. Until he took the cold water, the costiveness was so great as to occasion pain with the loss of blood at every effort to expel the fæces. Whereas, from the time of taking the water, the bowels were relieved daily by a motion, which was neither too lax nor too costive. By persisting in draughts of water, and the bark, he gained spirits and appetite, and the urine diminished to the quantity of five pints less, in the twenty-four hours, than the quantity of liquids swallowed. And as the gout was gone, and the ulcers skinned over, or scabbed, he has from that time been able to take exercise, attend parade, &c. And he has ever since kept his disease in a more chronic state.

But though the quantity of the urine is diminished, I do not find that the sweetness of it is much, if at all lessened. Neither the skin,

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nor

nor the perspiration has the least tendency to sweetness of smell or taste. He has within these few days had some more discoloration under the skin of the leg, which dried into scabs exactly like the secondary venereal ulcerations.

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I cannot help thinking, but that any secreting gland stimulated to increased secretion, would be found to have taken on more or less of a saccharine secretion.

I have long thought from the treacle-like smell, which is blended with the stinks of salivation wards, that the saliva of the patients of such wards would yield a considerable quantity of sugar: And that the clammy sweats of a dying person would also yield sugar.

Mr. Holwell, when confined in the black hole at Calcutta, observed the pleasant taste of his own perspiration. And gardeners are known occasionally to hasten the saccharine secretion of fruit, by partly breaking the branch which suspends the fruit; by which means, the fruit being weakened, it sooner becomes

becomes acted upon by the stimulus of heat. At least, so I would explain the fact. When a woman who has plenty of milk begins to wean her child, she finds as the milk diminishes, the sweetness of it also diminishes; and when the milk is very sparingly to be extracted, it acquires a saltish instead of a sweetish taste. I have at present, a patient who may be said to labour under a salivary diabetes. He is a pauper patient, a lad of about sixteen or seventeen years of age. He looks very pallid, but complains of no pains. He eats, drinks, and sleeps well. The saliva the first week I saw him had no unpleasant or particular taste, but the flow of it is immoderate night and day. I ordered him to swallow the saliva always when awake, and to take bark, steel, and small doses of opium, three times a day for a week. At the end of this week's plan, he said that the flow of the saliva was as great as ever, and that its taste was become sweet. What adds to the singularity of this boy's case is, one of the testicles lies at the abdominal ring. The sympathy be-

tween the testes and the parotid glands, in the cynanche parotidea is well known.

I should have been very happy to have ascertained whether the serum of Capt. M's blood be sweet or not, and to have marked the changes which the blood would spontaneously have undergone. But while Capt. M. remained so weak I could not propose bleeding, and now he feels himself so much better he would of course think it unnecessary. Besides at this season of the year, I have no time to make a fair experiment on the spontaneous changes of the blood. To do that, I conceive that the like quantity of blood should be drawn at the same time from a healthy person, in order that the blood of each may be exposed precisely to the same degree of heat, &c.

Yours, &c.

T. G.

Part of Dr. Rollo's Letter, dated 29th August, 1796, which relates to Capt. M's case.

Allow me to acknowledge my obligations to you for your farther account of Capt. M. I should not wish as you may be persuaded to injure him, and I think it would not do it to take away three or four ounces of blood—and as the spontaneous changes of healthy blood are well known, I do not think you have any occasion to trouble yourself with a comparison. Your theory is ingenious and the case of the salivary diabetes is curious; I shall certainly pay attention to increased secretions and examine their contents.

You know, however, that there are increased secretions of urine even of some continuance not sweet. I shall be happy to hear farther of my friend the Captain when you have leisure. Should he not get well and come up here, I shall of course obtain some further medical opinion for him in town,
and

and of any step you shall be made acquainted
—I should however be extremely glad you
join the merit of a cure. I beg my respects
to him, and believe me to be

Very sincerely and respectfully yours,
J. ROLLO.

*Dr. Girdlestone's Answer to that part of Dr.
Rollo's last Letter, about the sweetness of the
urine, was sent on September 22d, 1796, in
the following words.*

“ In order to generalize my ideas about
“ increased secretions, certainly the diminu-
“ tion of sweetness ought to correspond with
“ the diminution of urine. And I am ready
“ to grant, that there are increased secretions
“ of urine which have continued for some
“ time without discovering sweetness to the
“ taste. But that I do not think will prove
“ enough to deny the existence of any sugar
“ in such urine.”

POSTSCRIPT.

SINCE these sheets were printing, my friend Dr. Lubbock has detected two more cases of diabetes, by the affection of the prepuce. One of these patients was first an out patient, and afterwards an in one, in the Norwich hospital. This patient was of about fifty years of age, and naturally of a lean habit: His gums were sore, his prepuce affected, his urine sweet, and its quantity, alternating with a discharge by the bowels, varied from ten pints in the twenty-four hours to half a pint. Dr. Lubbock put the patient upon a diet of animal decoction, cold meat, and milk, and gave him small doses of opium, which plan mitigated the diabetic symptoms. Dr. Lubbock tried also the hepatized ammonia, without being able to discover from it any advantage. He also at my request ordered this patient one day a diet of river fish, and the next day a whiting, or sea fish. But,
contrary

contrary to the observations of my patient, very little alteration was observed from the first day's diet: And on the second day of eating the fish, the quantity of the urine was diminished. The patient on the second day had a motion extraordinary, so that probably the diabetic symptoms were rather increased than diminished, though they were not so evidently increased by this diet, as in my patient. Dr. Lubbock had intended to have omitted the milk in this patient's diet, and more rigidly to have confined him to animal food. But the temptation of drink, at the late Norwich election, caused the patient to desert from the hospital, and prevented Dr. Lubbock from being able to extend his experiments on this patient, or to learn any thing more about him. Dr. Lubbock found in this case as he had done in two former diabetic patients, that no sort of external application would relieve the phymosis, but that it was always more or less severe, as the other diabetic symptoms were increased or diminished.

FINIS.